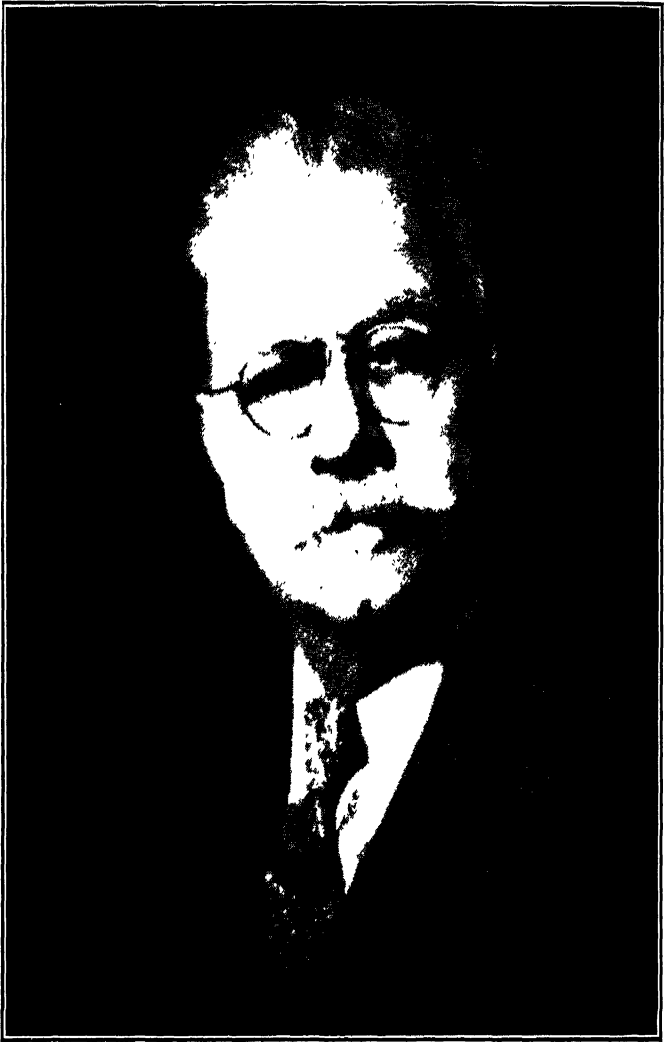


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SIMON LAKE

SUBMARINE

The Autobiography of Simon Lake

As told to
HERBERT COREY



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Foreword

PERHAPS no man in the past century has had as much to do with the shape of history as Simon Lake. That statement is intended as a query rather than as a statement of fact. It may be debatable, but it is also defensible.

He is responsible for the modern submarine.

The World War pivoted on him. Not on the Kaiser or Lloyd George or Hindenburg or Wilson or Ludendorff. He had nothing to do with the provocations or the settlements. He was an engineer almost unknown except on the coast of New Jersey and in a few capitals of Europe. His sympathies were not warmly engaged for either of the parties to the conflict. Not until the United States entered the war was he greatly stirred.

Yet the pitch-pine boat he stitched and screwed and nailed together as a boy rattled a mighty empire. Great Britain's crown as Queen of the Seas almost slipped off her imperial head. If she had gone down, France must have gone with her. The consequences of such a collapse are now incalculable. To-day's world may have been no worse than it is, but it must have been almost insanely different.

The brutalities of submarine warfare aroused the generous and sentimental people of the United States. Americans had had no cause to love Great Britain except that many traced their blood lines to quiet villages in the shires. A synthetic affection for France had been built up through a complete misunderstanding of the part France

had played toward us. We were drenched with Allied propaganda, and the German side of the case was muted. Yet we would in all probability have been able to maintain an attitude of detached partiality if the Germans had not turned barbarian with their submarines.

It was Simon Lake—this almost unknown engineer on the Jersey coast—who was wholly responsible for the submarine. It is not fair to say that some other man might have done what Simon Lake did. The fact is that there was no such other man. The modern submarine stems from his pitch-pine boat as surely as the oak does from the acorn. There is no one to share his distinction.

When we entered the war, the Allies were beaten. No candid person conversant with the facts will attempt to deny that now. The Americans reënforced the faltering Allies with men and money and munitions, but more than all with a reckless courage and an unthinking prodigality and a complete disregard for obstacles. They did not follow the rules of war but they won their battles.

Germany was defeated primarily because Simon Lake's submarine brought us into the war.

The part we took in the World War cost us forty billions of dollars, more or less. After being a Santa Claus, the United States became a Shylock to the eyes of our unwilling debtors. A boom based on inflation was followed by a collapse due to deflation. Ever-rising taxes galled a people who had hardly been tax-conscious before the war. Social unrest, the mouthings of demagogues, appalling extravagances by money-drunk officials from village to capital dangerously strained the American political structure.

A weakened and uncertain America lost something of its power to aid and comfort a frightened and confused

world. Behind a screen of submarines Japan felt competent to defy other major powers when a sprawling China seemed again open to attack. Italy armed with submarines was able to assert a claim to the Mediterranean as her sea. France and Great Britain were reluctantly forced to embark on a great navy-building program. Pirate submarines clandestinely aided Franco's rebel forces in Spain. All over the world the little powers on the edge of the waters added submarines to their coastal defenses. In past days a rusty cruiser armed with a few light guns could set such little powers shivering in their boots. The submarine has redressed the balance. Elaborate protections are required now to ward off evil-smelling, clanking, rattling, slimy little sea-vipers. They are deadly dangerous and they are comparatively cheap.

Simon Lake—no other man—is responsible for these changes in the form of history.

He found the submarine a bouncing, uncontrollable, suicidal, useless craft and made it into the arm most feared by the world's navies. In more than forty years he, and he alone, taught it to dive and steer, shaped its hull, gave it eyes, put guns on its turrets, and arranged such a compromise between comfort and exhaustion that its crews are able to keep the seas. Of the one hundred and eleven patents he took out for incorporation in the modern submarine, twenty-five are to-day in use in every submarine in the world. No submarine could make a voyage or see an enemy or fire a gun—or live, for that matter—except by using the Lake patents. The protective period has long ago expired, of course. No royalties are being paid. But they are the blood and veins and sinews of the dark monster that has literally and in fact upset a picture whose background was roughed in when men invented gunpowder.

Lake sees the fifty-million-dollar battleships of to-day as ponderous steel house-boats which provide dancing platforms for Navy Night and luxurious suites for admirals but are quite useless in wartime. Not merely useless, but an actual drain upon the resources of the country which must pay for and man and paint and in wartime protect them from the submarine. He foresees submarine navies, provisioned from submarine depots, silent and invisible. He anticipates trade routes furnished with submarine cargo- and passenger-carriers, and voyages made under the ice to the North Pole in comfort and safety, so that no school-girl need suffer; and possibly romantic ventures to the depths of the sea where may be found a lost continent.

Do these things seem absurd?

Then read that a great marine engineer, after opposing some of Lake's plans, finally conceded his own defeat.

"Your gadgets are all wrong according to the books," he said. "But the dickens of it is that they work."

It may be that he did not change the course of history. It is possible that the Germanic powers would have been defeated and that the United States would have entered the war if no one had ever heard of *unterseeboots*, or torpedoes, or the *Lusitania*. The evidence is that he did. And he invented and improved his submarine creations in the face of every obstacle, impeded by his own government, so hard-up at times that work once stopped because he could not pay a \$17 debt, opposed by every brass-hatted official horrified by meeting a new idea face to face. He was robbed and laughed at and humiliated and in the end triumphant. He has made fortunes and lost them.

He could refuse two and one-half million dollars offered for his signature to a blind contract. He could

spend a summer trying to find a lost treasure ship. He refused to buy the top of Signal Hill, under which more oil was hidden than in any other dome recorded in the story of the great petroleum adventure, and has never worried a second about the pocketful of millions he lost. He made a door-to-door canvass in New York for the backing he could not find, and refused a Russian contract that promised an immediate fortune because he could not endure the Muscovite morals. He is stubborn and Puritanic and persistent and modest.

It is doubtful, on the whole, that any one in this world has ever had a better time.

If the scales were balanced, it is probable that the submarine would be found to be an instrument of mercy rather than of murder during the World War. It made the bombardment of coastal towns a gamble in which the dice were clogged against the bombardiers. If the command of the seas had rested on big-ship power, thousands more men would have died, but the big ships were not risked. Not every submarine commander was a foul savage at heart. Most of them gave the stubbornly brave seamen who navigated rusty little slow steamers laden with food toward British ports a chance to escape with their lives. The submarine was slandered, after all, not because it was an illegal weapon—every nation accepted it—but because it endangered England.

But Simon Lake's place in history does not depend entirely on his creature of the dark waters. It is only that the submarine has been his most spectacular creation. Of his fifteen hundred patents—I say fifteen hundred, not even Simon Lake could give the number off-hand—others are perhaps quite as important as the one hundred and eleven that have to do with the submarine. He found an idea in an old powderhorn and made it into an

airlock, and that airlock made New York's under-river tunnels possible. He improved the old break-neck high-wheeled bicycle by giving it a safe steering gear, and that gear keeps the automobiles of America out of the ditches to-day. His patents for prefabricated houses antedated all others, else how could he have gotten patent papers? Because he had no time to give it, he neglected a plan of treatment by vacuum which might be claimed as the ancestor of to-day's "iron lung."

He has preserved an extraordinary simplicity of manner. Short, inclined toward stoutness, gray-haired, he peers at the world through his right eye. When the left eye must be called on, a drooping lid is propped by a wire frame that has the effect of a monocle. The eye is sound, but the muscles were injured while he worked of his periscope. He chuckles at merry recollections. He has never found it necessary to be profane. Men obey well enough. It does not fret his dignity to explain an order. If he has been wrong, he is delighted to be put right. Men who have been with him for a length of time call him "Simon." He detests "skrimshankers and belly-achers" and labor racketeers and bargaining politicians. He belongs to the old school in which were men who paid their debts and did not argue that a world can waste its way out of misery and who worked hard and saved and valued possessions less than self-respect. The two compliments he seems to have valued most came from an Austrian admiral and an American mechanic. For twenty-five years Popper had been the chief constructor of the Austrian navy. He had designed a submarine of his own and was about to built it when he met Lake and talked over plans. Later he said:

"You may be interested to know how you happened to get your first order from Austria."

Lake was interested, of course.

"I went to Emperor Franz Joseph," said Popper, "and told him about you, and asked permission to give you a contract. I said, 'His boat is better than mine.'"

He recognized the mechanic's voice through the hangings of a restaurant booth one night. A newly hired man wanted to know about his new boss:

"What kind of a man is Lake to work for?"

"I'll tell you about the Governor," said an old hand. "We'd go to hell for him."

HERBERT COREY

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CHAPTER I

A Small Red-Headed Boy

I THINK it is nonsensical for me to write my autobiography at this time. I am only seventy-one years old and I have not accomplished one half the things I wish to do. I have been talked into it.

I began life as a bad boy. Nowadays social workers would probably call me a problem child. I was a red-headed little Ishmaelite who hated every one and was hated in return. I was continually in trouble which I originated, conducted personally, and usually paid for by stripes and solitary confinement on stools and in closets. I do not remember ever having been at all sorry for the devilish things I did. Nor do I recall that I ever surrendered to superior force. My young head was often metaphorically bloody, but it was not bowed.

My mother died when I was three years old and my father left me in the care of my step-grandmother at Pleasantville, New Jersey, and went West. My step-grandmother was a puritan of the rigid old school. She emphatically believed that children were to be seen and not heard and that a spared rod meant a spoiled child. Each morning she read a chapter from the Bible, and then the household remained on its knees while she wrestled mightily with the Lord in prayer.

I am sure that I benefited by her severe discipline in the end, but the immediate result was that I started for school each morning with anger in my heart and returned home each afternoon surly and defiant.

At school the fighting started promptly on my arrival. Looking backward I can see that I was a savage, bitter little figure of fun. My step-grandmother was a good woman and a just one but she lacked sympathetic comprehension for a child's troubles. During my first year I wore a pair of my grandfather's old trousers which had been stagged off at the knee but had not been shaped to my small form; they were of themselves an invitation to practically continuous battling. Add to that the fact that my hair was belligerently red and that my face was one huge freckle through which ran a network of pale lines. The braver boys pulled my hair and did the best they could in the fight that followed. Sometimes they threw things at me. The girls chanted a rime I still remember:

*Simon, Simon, sucks eggs—
Sold his wife for duck's eggs.*

I had, quite literally, no friends at school in the first few years, nor did I try to make any. My teachers saw in me only a little red-headed devil who had a part in every disturbance. If I was not fighting I was setting others on to fight or planning some impish violation of the established order. They were of the old school, too—that was sixty-four years ago—and heavy-handed. I might tell the story of one day as I

remember it, not because it was exceptional—although it was—but because it illustrates the pedagogic method in use in Pleasantville. I had done something I should not have done. I do not recall what it was, but I was distinctly at fault.

“Simon,” ordered Teacher Rogers, “stand at your desk.”

I liked that. It gave me a chance to show off.

Whenever Rogers took his eyes off me for a second I made a face or twisted my body or popped a paper wad at one of the other pupils. Rogers could not catch me, but he knew what was going on.

“Go up forward,” he ordered, “and stand on my desk.”

I changed my tactics. Wearing a face as angelically innocent as possible under my handicap of freckles, I moved my feet a fraction of an inch at a time, until I managed to knock over the teacher’s big bottle of ink, from which he filled the bottles on our desks. Rogers slapped me hard, from behind, and although I had known precisely what was going to happen—I could not have seen those tense faces and popped eyes on the floor below me without knowing—I pretended to be startled and kicked out and hit him hard, in a tender place. Then he lost his temper.

“You little—!”

I do not know what it was he growled under his breath. But he took a scarf from one of the girls, tied it under my arms, and hung me up, crucifixion fashion, to a huge nail from which the map of the United States had been hanging for the geography class. The

school watched me, horrified. Teacher Rogers turned his back to walk to his desk. I made a circular swing with one stoutly shod foot and kicked out the window. Rogers snatched me from the wall, white-faced with anger.

"I'll fix you!" he said.

He locked me in the dark closet under the stairs, where the janitor kept the brooms, buckets, and other paraphernalia of his office and Rogers hung his hat and coat during school hours. I was hardly in it before I was out again, for I found out how to turn the key in the big, old-fashioned lock. Opening the door admitted light to the closet and I made some discoveries. There was a pot of lampblack, for one thing, and with it I blacked the banisters down which the children used to slide at recess. The amount of harm this did to their clothes later proved to be almost incalculable. Rogers' dinner pail was on the closet shelf, and as a matter of course I ate his dinner. Then I closed the closet door upon myself and waited upon events. The lunch hour was almost over before Rogers came to me.

"You won't have time now to go home for your lunch," he said. "Here's a nickel. Go over to the store and get yourself something to eat."

I was no longer hungry, but I used that nickel to the best possible advantage. At the store I bought a handful of the red-pepper drops once so popular with practical jokers. The pepper effect does not begin until the candy has been almost completely melted away and it can only be ended through the merciful

processes' of time. I stood at the gate as the girls returned from their homes at the end of the lunch hour, and gave each a mouthful of these demoniac confections. They were all crying bitterly when the bell sounded and I went into school.

"Lake, stand up," said Rogers.

"Yes, Mr. Puttyhead."

We called Rogers "Puttyhead" in our innocent childish way, but no one had ever addressed him in that fashion to his face. To this day I do not know whether it was a deliberate or an intentional offense. At any rate he carried on as best he could for the remainder of the day. Then he took me by the tip of my left ear and led me to my step-grandmother's home, a mile and a half away. He was a tall man, and he lifted me until I scuttled along on tiptoe for the entire distance. My ear still shows the result of that frog's march, for the cartilage was partially dislocated. Rogers did not say anything to me about the dinner I had stolen from him. Nor, looking backward again, have I any hard feelings. Times and methods were ruder than they are to-day. From the point of view of Pleasantville in 1874 or thereabouts I deserved all I got.

The battle-ground was changed when my father returned from his stay in the West, but the tactics remained the same. I was in continual hot water. We moved from Pleasantville to Camden, near Philadelphia, and in punishment for some deviltry the teacher gave me a little touch of Chinese torture. He forced me to sit under the spout of the water-tank, and fixed

the spigot so that the water dripped on my head, slowly, drop by drop. It was nothing at all at first; I grinned confidently at the other pupils, and when the teacher's eye was not on them they grinned back. But presently I discovered that the Chinese knew what they were about when they invented the water cure. I never returned to that school.

For the next three months I played hookey every day, and reported at home cheerfully each night with my books and my story of the day's happenings. That might have gone on indefinitely except for a bit of bad luck. The ice was going out of the river with the spring freshet, and another boy and I had fun rafting down the river on the floating cakes. One cake grounded on the wrong side of the river and we had to swim ashore. As wet clothes would have been a give-away for us, and as we were hardy young ruffians anyway, we stripped them off and dried them in the sun, while we sat on the float of one of the boat-houses. A man who knew me recognized us—my red hair was a beacon which could be seen from a distance—and told my father.

"Tell me about this, son," said he.

He was a stern man but an understanding one. Perhaps the water cure from which I had suffered turned him to my defense. At any rate he did not punish me, and we moved to Philadelphia. There I had the first bit of happiness I can associate with my school years. My new teacher was a very pretty and charming girl and, school-boy fashion, I fell head over heels in love with her. Perhaps the obvious de-

votion of the red-headed, freckle-faced kid who had come to her with a bad reputation attracted her. Perhaps she liked me for some of the better qualities I had been so studiously concealing. At all events I became her prize pupil—one of the teacher's pets on whom I had been conducting merciless war all my scholastic life—and from that time on I stood at the head of my classes. I had never bothered to study in other schools and had affected a hardy disdain for the details of clothing and toilet, but now I became positively dandified.

My father sent me to a coeducational boarding-school at Fort Plain, New York, to take a business course. I had ceased to be a rebel, but I had no liking for more learning. Already my tastes were being channeled in the way I later followed. I liked to make plans and play with tools, but as my father thought I should know something of business methods, I submitted. The verb "submitted" is used because it accurately states the case. My father was a disciplinarian, but he did not attempt to force me against my will, once I had established a position which I could defend.

Armed warfare was supplanted by school-boy pranks at the coed school. I got into a good deal of minor trouble, but my recollection is that the head of the school had a turn of humor and knew almost as much about boy-nature as the boys themselves. One night we raided the store-room, climbing down a wall on rope ladders and opening the store-room door with keys I had made from a wax impression.

Decidedly I could not have been at this time a joy to any teacher's heart. We managed to get back to our rooms in safety with our burdens of pies and cans of preserves, and our pockets filled with apples. There we found the head of the school lying in wait for us. He punished us, but he also laughed a little.

It was while I attended this school that I had the closest call of my life, in spite of the fact that most of my years have been spent in working with submarine boats and explosives and other devices usually considered dangerous. The girls were to give a show "for girls only" and laughed at us when we said we would manage to see it by hook or crook. With another boy I got into the locked attic which covered the entire house, and from which we planned to get on the roof through trap-doors and lower ourselves down to the windows of the hall in which the girls were giving their show.

We had no means of lighting our way. Half-way across the floor, with one foot in air, I withdrew that foot and put it back where it had been. Then I got down on the bare floor and felt about with my hands. I had actually been about to step into an open shaft planned for an elevator which had never been built. There were no openings on the floors below and no one in the house knew of its existence. What made me stop, foot in air, and feel about in the darkness for an unknown danger I shall never know. Perhaps the explanation is perfectly simple. I was moving forward very slowly and carefully, in order that no untoward noise should signal our enterprise to those on

the floor below, and it is possible that I merely lowered my foot past the accustomed level and automatically took alarm when I found no support. The shaft was sixty feet deep.

In 1884 I returned home and told my father that I was through with school. I was then seventeen years old.

CHAPTER II

Invention Runs in the Lake Blood

JULES VERNE was in a sense the director-general of my life. When I was not more than ten or eleven years old I read his *Twenty Thousand Leagues under the Sea* and my young imagination was fired. This generation may have forgotten that Verne was a great scientist as well as the writer of the most romantic fiction of his day. I began to dream of making voyages under the waters, and of the vast stores of treasure and the superb adventures that awaited sub-aqueous pioneers. But with the impudence which is a part of the equipment of the totally inexperienced I found fault with some features of Jules Verne's *Nautilus* and set about improving on them.

This was not the complete absurdity in fact that it may seem when set down in black and white. There is a strong strain of inventiveness in the Lake blood. Tools run in our blood stream and drawing-boards and calipers are household necessities. Before I was nine years old I had taken my stepmother's sewing-machine completely apart and put it together again, and it ran better than it ever did. My father was a watch repairer in his off moments. For that matter, he was anything which had to do with tools.

In his little workroom he had a saucer filled with spare parts for watches, new and old.

"May I work with them?" I asked one day.

"Don't lose any" was his permission.

I put a watch together which not only ran but keeps time accurately to-day. Its only eccentricity is that it will run only while lying on its back, due to the fact that the one balance-wheel I could find had been intended for a watch of an entirely different caliber.

Possibly the fact that during my earlier school years I was something of a belligerent pariah, and was, therefore, cut off from the normal contacts with my kind shaped my likings, but in any case I always preferred messing around with tools to playing with the youngsters of my age. Drawing plans to scale was as much fun for me as solitary sailing in my boat.

In 1881 we moved to Toms River, New Jersey, from Philadelphia, and for a time I lived a charmed life. I sailed my boat, drew plans, worked with tools, and, so far as I can recollect, was not interfered with at all, so long as I obeyed the household rules about meal hours and bedtimes. I had been so excited by Jules Verne's *Nautilus* that I began to read everything which might have a bearing on the problems attending my proposed penetration of the depths of the sea. It was at this time that I studied Steel's *Natural Philosophy*, and learned of the diving-bell. It was, perhaps, natural that the kind of a boy I was should draw plans for a submarine which would have a diving compartment.

That early submarine of mine was the predecessor of all the submarines there are on the seas to-day. Until the paper accouchement of my *Argonaut* no one had invented a submarine which could submerge with an even keel, instead of progressing in the distressing hops and bounds which had made the first attempts at submarining impracticable. My *Argonaut* could be driven under water for an indefinite period, which is more than could be said of any other proposed submarine of the day. It had wheels on which it could run along the sea bottom as readily as an automobile can traverse a paved highway; they demonstrated their practicability later by obtaining for me a rich contract with Russia.

My plans for the *Argonaut* included an air-lock, which was the first practical application to my knowledge of this principle in connection with a diving-bell. Verne's *Nautilus* had been provided with a diving compartment which could be opened to the sea, but which was manifestly inconvenient and dangerous. I added an intermediate air-lock and devised an air-pump, by which the air-pressure could be raised in the diver's compartment until it equaled the hydrostatic pressure of the water outside. Then the diver's door could be opened, and no water could enter the compartment so long as the water- and air-pressure equaled each other.

The intermediate air-lock permits the occupants of the submarine to pass back and forth between the living quarters of the submarine (in which the air-pressure is always maintained at the substantially

normal atmospheric pressure of about fifteen pounds per square inch) and the diving compartment, in which the air-pressure must be increased 0.433 pounds per square inch for every additional foot the submarine submerges when the bottom exit door is open. One can spear fish or scoop up crabs or walk on the bottom of the sea with ease as long as one keeps one's head in the air-filled compartment.

I knew nothing of the "bends" in those days. I doubt if any one else did. They were the deviltries of later days, when high air-pressure became the rule in working in caissons and in New York's under-river tunnels. My little *Argonaut* had been planned only for submersions to a shallow depth in the waters around Toms River. The original designs called for wooden construction throughout, and man-power on the gears that drove the propeller, but it carried in it every important development in submarining which the past half-century has seen.

I do not suggest that some one else might not have seen the possibilities later, but only that I saw them first. Years later Charles SooySmith, head of the Foundation Company of New York, said to me:

"I got my idea for using the air-lock in driving caissons for foundations and in building tunnels under the river from your early work. Much obliged, Simon."

In turn I had had my idea from some forgotten Lake who had hunted deer, and perhaps Indians, in this same country around Toms River. Among the innumerable things of doubtful utility which had

little by little accumulated in the household was an old powder-horn. The man who had first boiled and scraped that horn had had a turn toward artistry, for I recall that it was covered with ornamentation, scratched in with the point of a hunting knife. One day when I was completely stuck with my air-lock plan—I knew what I wanted but I did not know how to get it—I picked up this old horn and began to fiddle with it. The small end carried a curious double charger, the like of which I have never seen since. When it was pressed down, a charge of powder ran into it from the horn, and when it was full the flow was automatically cut off. That gave me the idea for the air-lock. If it had been adopted by modern submarine constructors there would have been fewer losses of life in submarine disasters. It is quite feasible for the crew of a helpless and sunken submarine to reach the surface through the air-lock if proper escape devices have been provided.

That old powder-horn recalls an incident that is perfectly incredible. No one can believe it, yet I am sure it is true. While my father was in the West, following the death of my mother, he had picked up an old cap-and-ball revolver. It was a sort of a blunderbuss affair, carrying an enormous round bullet, and with a hinged ramming mechanism attached to the side. I had found it during my rummaging among the plunder in the attic and promptly commandeered it. It had its part in the games I played with myself, and when I could get money enough to buy powder and shot and caps I would go hunting with it. In

order to forestall any possible objections I hid the old revolver under the front porch. Then I forgot about it, and when the hired man quite accidentally found it on one of his clean-up expeditions a household panic followed:

"Burglars hid it there," said our womenfolk. "We will all be murdered in our beds."

That this did not make sense is perfectly evident, but the to-do persisted until I came forward and told my story. My interest in hunting was reawakened by the return of the old gun; with some difficulty I got hold of ammunition for it and went hunting. Exposure to the salt air of the Jersey coast had ruined it, however. The barrel was almost plugged with rust, and its other parts were in a decayed and ruinous condition. That meant nothing to me, for ballistics has never been one of my preoccupations. I loaded it with a full charge of powder and shot, aimed it at a bird, and fired. The old pistol blew up in a shower. Bits of it rained down all around me. The bird witness of the explosion fell dead.

No one will believe me, but it is a fact that there was not the tiniest mark of any sort on that bird's body. It must have been literally scared to death.

It could not have been very much more surprised than I was a little later, however. My Uncle Jesse had taken a fancy to me, and I spent a good deal of time in his workshop. One day I was hard at work with a foot-punch. You placed whatever it might be that you wished to punch in the jaws, and then

stamped on the foot-treadle. Just as I was about to stamp Uncle Jesse called to me:

"What are you making, son?" he asked.

"A thing for my boat," I replied, punching hard. His question had taken my mind off my business. The punch went through the gadget and my forefinger, too, and held fast. I called over to Uncle Jesse: "I can't get my finger out."

"Why don't you take your foot off the treadle?" he asked.

The doctors said that my finger would have to come off, but my father would not listen to them. It was saved after months of bandaging, although even yet it is nothing to boast of. My natural resentment at this accident was tempered, however, by the fact that it relieved me of the daily half-hour of piano practice on which my stepmother had insisted. I had precisely the same amount of liking for the piano that any growing boy has who prefers to spend his time in the open air when he is not fooling around with tools. I figured I was well ahead of the game.

My Uncle Jesse Lake was a remarkable man. He was a seafarer by preference and kept two schooners constantly in commission. Between times he ran his foundry and a farm and did inventing as a side line. He had an old treadmill on the farm, which was operated by horses and furnished the power for various farm operations. One year he got a contract to build a road across a patch of swamp, but ran into difficulty when the ground was so soft that he could not haul his wagons over it. So he sat down to think.

"I'll just turn that old treadmill upside down," said he.

He did and it worked. The horses worked the treadmill, and the cleats on which they climbed marched over the soft mire and hauled the wagons behind them. It would be difficult to overemphasize the importance of this almost accidental discovery. It was the precursor of the caterpillar tractors that are in use everywhere in farm and road-making operations and a theory without which the tanks used in modern warfare would be impossible. Later he built a steam-driven tractor locomotive which pulled a whole train of gravel cars. This was used to build the first highway from Pleasantville, New Jersey, to Atlantic City, a distance of about five miles across a soft swamp that had hitherto been impassable.

He sold to Cyrus McCormick for fifteen hundred dollars the device for lifting the cutter bar of mowing-machines over stumps and stones, which made the mower a really practical article. One day he found he needed a more powerful winch with which to pull his schooners up on the ways—so he made one which has never been excelled. He was as sure of his winch as Archimedes was of his levers. "Give me a place to tie to and I could pull the earth and moon together."

Uncle Jesse invented the whistling buoy and anchored the device on Sandy Hook for a trial. It was so successful that some one took the idea and got a patent on it.

His inventions were not always so practical. One

year he invented shoes with which to walk on water.

"We'll try 'em out on Fish Creek," he said. My father and Wesley Lake went with him to a place on Fish Creek, between Pleasantville and what is now Atlantic City, where he tied on his shoes and started for his stroll. They worked all right, too. He was getting along fine until he turned his head to look at something and capsized. Uncle Jesse was held head down in the water with the shoes on top until Father and Wesley rescued him. He threw the shoes away.

Uncle Jesse and Uncle Ezra invented a flying-machine which had at least a hint of practicality in it, for Ezra flew in it. But he picked the wrong place for his flight. He set it up in one gallery of the Pleasantville church and undertook to fly across the church and land in the opposite gallery. He flew, but he did not fly far enough and landed with a crash in the pews. The story is still a joke in the Lake family.

Other Lakes went in for invention. My Grandfather Lake made what was perhaps the first practical seed-planting machine; his cousin Vincent designed an excellent typewriting machine and was one of the inventors of the old Calligraph typewriter. His first machine was shown at an exhibition in Brooklyn not many years ago. Risley Lake, another cousin, with his brother Vincent, invented what is now known as the offset device for color printing, and David Lake—we spoke of him always as "D"—invented the shoe-lasting machine, made money out of it, and retired from business as a young man. Ira Lake had made a

workable telephone when Alexander Graham Bell announced his initial success, and Ira dropped out.

My father invented the shade-roller for windows, and put it on the market about the time that the Hartshorn shade-roller was also patented. The Lake and Hartshorn rollers were sufficiently unlike to invite competition, and both men did very nicely for years. Then the patents expired and Hartshorn outsmarted father. Every other man who knew how to add ratchets to round sticks went into the shade-roller business and the market was flooded. After a time my father gave it up. Hartshorn had plenty of money and kept on. "Buy a Hartshorn roller if you want a good roller," he advertised. Perhaps that was not the phrase he used, but that was the meaning. The men who were new at the business had been using green wood and cheap springs, and their customers were glad to throw away their contraptions and buy the Hartshorn roller. Father had not known how to advertise his business and was ruined.

I am afraid that the Lakes are not interested in keeping money after they get it. Most of them have made comfortable livings and had good homes, but I know of none who became a multimillionaire, although many have been pioneers in various activities. John Lake was one of the founders of Gravesend, now South Brooklyn, in 1645; his son William Lake took up land in what is now Atlantic County, in South Jersey, and his descendants were active in the development of that section.

My great-grandfather surveyed the Shore Road

which for years was the only roadway along the coast from Cape May to South Amboy. I remember that as a boy my grandfather showed me the remains of the wooden floors of the evaporating ponds his father had built, where a rough salt was extracted from sea water. This is now Atlantic City, but at that time there was not a house on the island and the only use made of it was as a pasture for cattle. When summer campers discovered it grandfather and his brothers built the first roadway over the meadows and bridge over the Thoroughfare. This was the only means of communication until the railways came, followed by the superb system of boulevards over which the cars stream unendingly to-day.

The Lakes have been active in the temperance movement, too, ever since my great-grandfather and Benjamin Rush, one of the signers of the Declaration of Independence, traveled together through the country preaching against strong drink. Sometimes the drinkers disagreed with them so violently that they were compelled to call for the protection of the county sheriffs. Pleasantville did not have a licensed saloon for more than one hundred and fifty years.

In 1881 my grandfather owned the island called Peck's Beach on which Ocean City was built. As a member of the New Jersey Legislature he succeeded in having a law enacted forbidding the sale of liquor or the operation of bawdy houses in Ocean City, under penalty of the forfeiture of the land on which an offending establishment stood.

His death was caused by his activity in protecting

the coast-line of the island against the storms which have eroded so many miles of the New Jersey shore-line. He employed many men to cut down brush and riprap the waterfront, so that instead of the sand being torn away by the undertow it was washed up, becoming a part of the solid ground. Many handsome homes now stand on the northern part of the island which was saved by his forethought. In showing an Italian workman how to handle an ax he cut his foot one day; blood poisoning set in and he died.

The temperate and active lives led by most of the Lakes have conferred the blessings of great physical strength and ripe age upon them. My father is ninety years old and still quite vigorous, so I look forward to at least ten years more of activity.

I am also a descendant of Jeremy Adams, one of the founders of Hartford, Connecticut, in 1636. His name appears on the Founders' Monument in Hartford. Jeremy was Indian Agent and, by appointment of the King, the Keeper of the Public Inn. His home was torn down a comparatively few years ago to make room for the buildings of the Travelers Insurance Company.

Old Jeremy seems to have been a fast thinker. The Colony got into difficulties with the Crown and it was essential that the original copy of the charter under which the Colony was operating be preserved. A meeting of the General Court was being held in Jeremy's Inn and the charter was laid on the table while the dispute raged.

"This room is too hot," said Jeremy. "One of you serving men open the windows."

The windows were opened, a brisk Connecticut wind blew in, extinguishing the candles, and Jeremy tucked the charter under his coat. Perhaps he was suspected, but at all events he was not searched, and later he hid the charter in the Charter Oak, where it remained in safety. One of the later Adams moved to New Jersey and married into the Lake family.

With this background of pioneering it is perhaps natural that my interests have been more in doing things than in making money. I remember that Frank Miller, then president of the City National Bank of Bridgeport, said at a public dinner:

"I have known Simon for years and I am fond of him, but he doesn't know the value of a dollar or how to keep it after he gets it."

"That's probably true," was my reply. "But I had rather die broke because I had been spending my money in doing worth-while things than sit around cutting coupons."

CHAPTER III

Befriending the Oyster Pirates

WHEN I first conceived the idea of the submarine, as a school-boy at Toms River, New Jersey, I was fascinated by my idea of the diving compartment. I felt that if I could step out of my submarine-which-was-to-be right onto the ocean floor I would soon be able to outmarvel Verne himself. But I only had the idea. I knew nothing of air-pressures, nor how long it is possible to live and breathe stale air over and over again, nor what takes place in air that has been exhausted by overuse. None of the books at my disposition contained any information. No one I knew could tell me anything. It was evident that I must work out my problem for myself.

Fortunately for me the means for this was at hand. In those days the magazine *Golden Days* was the friend, guide, and instructor of every boy who could scrape together the dollars for a year's subscription or wheedle his folks into subscribing for him. In each number were suggestions of devices which could be put together by boys, and which so far as my recollection goes were always enticing but often dangerous to life and limb. During my residence at Toms River in 1882 the magazine carried elaborate directions for

the making of a canvas canoe. I made one and found it the crankiest craft ever put together. If you winked an eye she either spurted out from under you or tipped over, or did some other silly thing. But I experimented with her patiently, and finally located her center of gravity; after insuring her static stability by careful ballasting, I managed to have a good deal of fun.

It was evident to me that if I tipped that canoe over and held her bottom side up in the water the cavity of her hull would contain a certain quantity of air. My problem was to overturn and then come up under her and see how long I could go on breathing. It appears now that I at that time lacked that passion for exactitude which marks the true scientist, for I do not remember that I had any way of measuring the air-content, and I certainly could not expect my home-made watch to time me accurately after a dive through the water of Toms River. However, I upset the canoe, put my head up inside her, and waited patiently to see how long I could stand it. My first research into the problems which air presents to the submarine engineer was abruptly ended. My canvas canoe was righted by a strong hand.

"What's the matter with ye, Simon?" asked an anxious voice. "Be ye hurt?" My explanation of my purpose in overturning the canoe was only a confirmation of what Toms River had long suspected about my intellectual furnishings, but that was of no consequence to me. I had been able to live without fresh

air for approximately half an hour, and that gave me a point of departure for my calculations.

Before I was fourteen years of age I had completed the plans for the first *Argonaut*. I left them in my father's desk when I went away to school. When I came home again, completely distasteful of schools and teachers and hungry to get my hands again on tools, I showed them to him.

"They look all right to me, Simon," he said, after he had studied them for a time. "But what's the meaning of this? And this?"

I explained the things that had puzzled him.

"Let these plans alone for a time, son," he advised. "The best engineers in the world have tried to solve these problems and have failed. Give yourself a little more time."

This was not welcome advice, of course. I had no money, for a school-boy rarely is able to accumulate capital, and no one would back me, and I was wholly possessed with my submarine demon. But there was nothing I could do about it except to go to work and make money, and ultimately carry out my plans. I bluntly refused to go back to school.

"You should have some technical training," father said. "I would like you to go to a good technical school."

"I want to go into the shop," I said stubbornly.

Father had moved his little foundry from Toms River to Ocean City. The Lake family had founded both Ocean City and Atlantic Highlands as shore resorts with strong religious influences and control, and

were not only interested in their temporal success but in the quality of their morals. Father thought his little foundry would make money—if it did not its door would quickly be closed—and that it would afford employment to about thirty men, thus benefiting the town. Tom Cooney was the boss molder.

"I can make a molder of the lad," he said, after he had watched me work in the foundry for a few days. He was a good man and he made a first-rate molder of me. I was then fourteen years old, and I weighed 145 pounds. I was fast and tireless and filled with young ambition to be the best man in the shop. Pretty soon I had a bench of my own. Then I teamed with another man who was the fastest man in the shop in some operations, just as I was the fastest in others. When we worked together we could best any team in the foundry. Then I began to look into the higher branches of the art. We had a man named Forrester who was a very good pattern-maker, and he taught me how to make a gear-wheel, which was a test of proficiency. I began to go to Franklin Institute in Philadelphia three days a week to study mechanical drawing. I could see that if I were to make a really first-rate submarine I must know something of many things.

When I was eighteen my father had to go west on business, and he left me in charge of the foundry. The thirty men had been working for us for a long time. They had their homes in Ocean City, other employment was almost non-existent, and their relations with the Lakes had been admirably friendly.

Neither my father nor I suspected that any trouble could possibly come up. But he was hardly out of town when the men staged what we would call nowadays a sit-down strike. One of the men came to me.

"We've got to get more money, Simon," he said, "or we quit."

The word "Mister" had, I suppose, never been heard inside the foundry walls. Managers and men knew each other by their first names. The other men sat down by their benches and grinned at me. They evidently thought that they had the boy by the short hair. If I did not give them the increases they asked I would be shown up as an incompetent manager who had had his factory shot from under him on his first day in charge.

"That's good," I said heartily. "You know about as much about the factory as I do, John. You know we are not making much money—just managing to keep open so the men can have some work and draw some pay. But this gives me a chance to shorten the payroll. I'll discharge a few of the men right now—and you're the first to go, John."

"Wait a minute," said John hurriedly. "Let me talk to the boys."

In no time at all they were hard at work. Perhaps we lost ten minutes in the sit-down strike—no more. The men grinned at me now and then during the day and then forgot it. As they might say nowadays: "Anyhow, we tried. You can't blame a fellow for trying."

On one occasion my father called me into his little office.

"Simon," he said critically, your clothes are not very good."

They were not, of course. Every waking minute, almost, was being spent in the foundry. I did not need good clothes. But father seemed to think that the not-exacting standards of the family were being lowered by my dress.

"Here is some money," he said. "Go into Philadelphia to-morrow and buy some clothes."

I meant well, but my flesh is weak when exposed to the printed word. Before I got around to buying clothes I stepped into a book-store to browse around, as the clerks say, and came home with plenty of new books but no new clothes. This was one of the really important days of my life. One of the books I bought was Haswell's *Mechanic's and Engineer's Pocket Book*, which was to be my Bible for years to come. Charles Haswell was the first chief engineer of the United States Navy, and for more than forty years the official measurer of the New York Yacht Club. No other marine engineer of his time could be compared to him, in the opinion of the old salts who demanded facts in their operations and were only mildly concerned with theory. Old-timers will agree that "Uncle Charley" was one of the notable men of his day.

Haswell's mind operated entirely in mathematical terms. Later he became my first stockholder.

"How old are you, Uncle Charley?" some one asked one day.

"If I live until Thursday," he replied, "I'll be ninety-eight point seven."

When I got home with my load of books my father frowned mildly at me.

"I'm sorry about the clothes," I explained. "But after I got the books I had to have there was no money left."

I studied Haswell's *Pocket Book* until it was dog-eared. The old book is still on my desk and even now I sometimes refer to it.

It was about this time that I first came in contact with the old high-wheel bicycle. The extremely lucky present generation has never used this mechanical beast, and for its information it may be stated that the first practical form the bicycle assumed was that of a very high wheel tailed by a very small wheel. Mounted on top of the high wheel the venturesome rider kicked vigorously at the pedals. If the high wheel encountered an obstacle suddenly, he fell on his nose and the two wheels fell on him. If at speed the high wheel hit a rock or corn-cob or anything else at an angle, the handle-bars twisted out of his hands and he dived sidewise into the ditch while the wheel executed an intricate wriggle and with un-failing accuracy fell over him again.

It seemed to me that something could be done about this, and in 1887 I patented a steering device which enabled the rider of a high wheel to retain possession of the handle-bars even under a considerable twist. An adaptation of the same scheme is used

on the steering-gear of all automobiles nowadays. If the gear were held without any chance for play when the wheels strike an obstacle every automobile in the world would be in the ditch. This patent was granted on May 24, 1887, and I had fairly started on my career as an inventor. Since then I have had over two hundred patents granted me in the United States and foreign countries. One hundred and eleven have to do with submarines or their mechanisms. Twenty-five of my patents are now in use on submarines everywhere. Without them there could be no practical submarines.

My improved steering-gear for high-wheel bicycles proved to be practicable. I had sailed a boat from the time I was big enough to haul on a rope, and I was familiar with the manner in which a steering-wheel fought the helmsman in a heavy sea. I therefore planned an extension of my improved steering-gear for small-boat use. There was a market anywhere along the Atlantic seaboard, but it seemed to me that a better one might be found in Chesapeake Bay. The bay was at that time producing more—and perhaps better—oysters than any other body of water in the world. They were dredged for from the decks of small sailing-vessels, and to haul the heavy dredges aboard a device known as a “winder” was used. The “i” is pronounced as in wine. It consisted of a winch and a winding handle. Not infrequently the dredge would catch on an underwater obstruction, as the vessel sailed along, and snatch the handle out of the hands of the men at work “winding.” Many a good man has

been killed by a blow on head or chest from the heavy handle.

I had a simple little scheme for stopping that back-firing of the winding handle, and I took it and my improved steering-gear to Baltimore for sale to the oystermen. This was in 1888. Not long ago I saw two steering-gears that I had put on in 1891 in use on oyster sloops in Baltimore. The operation of putting the safety gear on a steering-wheel was not a complicated one, and I used to row out in the bay at night and attach them while the fleet was at anchor. At thirty-five dollars each I made a very decent living.

I did not realize it then—or if I did it was just an occasion for laughter—but I was probably the best friend the oyster pirates of Chesapeake Bay ever had. Those were hard days. Morals and ideals had not been burnished to perfection. The oystering business was about as tough as any business you can think of, and the oystering captains were as rough as any of the bully mates on American deep-sea clippers. Men employed on the sloops were paid off at the end of the season. If there was a shortage of dredgers no captain had any hesitancy in shanghaiing as many men as he needed, with the help of the saloon keepers on Boston Street. Some of the worst of the captains were reputed to pay off at the end of the season by “jibing the main boom”—a humorous way of saying the men were murdered.

My winding-gear was noiseless, whereas the clank of the pawls on the old-fashioned winders could be heard for miles on a calm night. The best of the

oyster-beds were privately owned and were protected by guards, and many of the state-owned beds were forbidden to dredgers. As long as oyster-dredging was a noisy and unconcealable business these laws were obeyed except by the more desperate of the oyster pirates, but my noiseless gear enabled even the reasonably law-abiding men to drift over a guarded bed and scoop up a sloop-load without arousing the law.

Many a life has been saved on the Chesapeake Bay by my improved steering-gear and my safety-assured winders. But how many million bushels of oysters have been stolen by their aid is any one's guess.

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CHAPTER IV

First Contact with Big Business

I HAD been living a sheltered life. The Lake family is God-fearing and temperate. The men in my father's family were sound, self-respecting Americans. Toms River was a village with a dash of sea air, and Ocean City was professedly religious in tone. Profanity and drunkenness were as rare as arson or wife-beating. In Baltimore I was to have my first contact with the person known as the up-and-coming business man. I did not like him.

I had been making a very satisfactory living with my steering-gear and my winders, for the Baltimore oystermen bought about as many as I could supply. As the oyster-boats could often be worked on only at night, I spent my daytime working at new ideas and made sales and delivered my goods at night.

Baltimore was then a canning center, and the A. Booth Company was the largest canner. Booth's canning was done by machine, but it was not satisfactory. Two machines and a dozen men were needed to cap 15,000 cans a day. I went in to see Booth with plans for a new machine.

"Show me," said the head of the company.

Before I could show, it was necessary to build a machine. As usual, I had not enough money. But I

went to New York, enlisted three moneyed men, and formed the Lake Capping Machine Company. I thought they were very nice men indeed, for they were kind and hearty to me. As soon as I had shown them my plans and told my prospects they agreed to put in \$10,000. In return they were to have control of the company. They told me that this was customary and, indeed, necessary. An inventor, they explained, could not be expected to be a good business man. They would relieve me of the harassing details of bookkeeping and I could devote myself to the making of the machines. This seemed a very sound idea to me. All inventors who enlist the aid of business men hear the same story. In most cases it seems sound to them.

My friends actually put in \$600 in cash. I was to draw a salary of \$75 a month as soon as I was able to get into production. During the preliminary period of getting ready to get into production I drew no salary. I do not know how my friendly partners thought I would live during this time, but that is of no consequence. I made my machine and set it up for operation. In the Baltimore canning factories the men were classed as skilled workers. My machine could cap 50,000 cans a day and only two green boys were needed to supervise it.

I was on the highway to fortune, as I thought, but it turned into a detour. The Cappers' Union of Baltimore promised to close any canning factory that adopted my machine. The Union would have been helpless, as a matter of fact, for my machine could

do the work of forty men, and no Union could stand up against that. But the Union bluffed and the canners capitulated. I was in no position to take an active part, for I had completed but one machine, and it capped one- and two-pound cans only. The canners wanted machines that would cap three-pound cans as well. The A. Booth Company was willing to fight the Union and contract with me for the machines, but—quite properly—wanted to be certain that I would be in a position to supply the spare parts and make repairs as needed. The company was fair with me, however.

“We will buy the machine you have on hand if you can assure us of protection,” said the Booth Company. “Then you can go ahead and manufacture others.”

I called on my three backers for more money. Everything seemed rosy to me, for sales were certain and, what was more important to an inventor, my machine would be put in operation. I was so anxious to get ahead and so desirous of lightening the load on my three backers that I offered to forget all about my salary until we were able to get into production. Three days’ pay was coming to me at this time, or approximately four dollars. As a business man I expected payment of this sum. My backers gave me the first of many shocks I have received in dealing with business men.

“We think it best for you to sell the one machine you have built to the A. Booth Company,” they wrote me. “This will make the company a very considerable

profit, and with this money in the treasury you can then go ahead and build other machines."

I replied that the A. Booth Company would not only not buy a single machine, but that I would not sell it if they were foolish enough to buy, for a breakdown would put the company at the mercy of the Cappers' Union. Before any sale could be made the Lake Capping Machine Company must show good faith by producing other capping machines. But my three backers refused to go on with their agreement and put up the remainder of the ten thousand dollars they had promised. They were so bemused by the opportunity to make a large profit on the single sale, which would furnish the backlog for the enterprise at no cost to them whatever, that they were simply unable to see the other factors. So the Lake Capping Machine Company blew up. I never saw them again. They had control of the company, and I was helpless, but they could not make the machines and they were helpless. The company just died.

I was not as much disappointed as one might think. My interest in submarines had never flagged, and it had risen higher than ever because of my association with the Chesapeake Bay oystermen. I had married Miss Margaret Vogel of Baltimore in 1890, and she had encouraged me in my almost nightly work on plans for submarines. All my life it has been my habit to work until midnight, or thereabouts, and rise not long after dawn. This is not so much a habit of industry as of self-indulgence. I have always been so enormously interested in whatever it is I am doing

that the days are too short for me. I had worked out the scheme for the Lake submarine and had decided to name it the *Argonaut*, if and when I was able to build one. At this time I had no thought of building a submarine for naval use. I was possessed of my original conviction that a submarine built for purely commercial use would be profitable.

After forty years of practical experience I still think so.

One day in 1892 I came home to find my wife tremendously excited.

"Look," she said, pointing to an advertisement in one of the Baltimore papers. "The Navy authorities are advertising for bids on a submarine."

"If I win the competition," I said to her, "I'll buy you a lot of pearls."

The Navy Department had listed certain requirements as essential. In the order of importance they were: safety; ease and certainty of operation when submerged; speed; endurance; offensive power; stability; ability to perceive the object to be attacked. For more than a century the Navy Departments of several countries had been examining the possibilities of submarine navigation. In 1863 the French Navy brought out the largest and most efficient submarine boat to be launched during the nineteenth century. In 1866 Mr. O. S. Halstead of Newark, New Jersey, completed a submarine on which the United States Government made a partial payment. The *Intelligent Whale* is still to be seen on the Green at the Brooklyn Navy Yard. Some years later Mr. J. P. Holland

had launched the *Fenian Ram*, which was designed for use against the British Navy during Ireland's war for independence. But no satisfactory submarine had been produced, although a number of inventors were at work on plans.

"Good luck, Simon," said my wife when she kissed me good-by the morning I started for Washington to submit my plans.

"I'll need it."

But I found that I really needed a good many things and luck was only one of them. When I was finally ushered into the office of the Secretary of the Navy my heart sank low. Here I was, a green youngster of twenty-seven—I felt about fourteen years old that morning—in the presence of more important men than I had ever seen in my life. No one sat at the Secretary's desk, although from time to time orderlies placed papers on it or took others away. But the great room was filled with men who might have been anything, only provided it was big enough. Those were the days of frock-coats in official life, and whiskers, and cable-chains stretching across low-cut vests, and large and impressive hats. I sat on a divan, my rolled-up plans in my hand, and felt my insignificance grow on me. A young man sitting beside me spoke in a friendly way.

"I suppose you're a submarine inventor, too," he said, nodding toward my roll of plans.

"Are all these men inventors of submarines?" I asked.

"Oh, no. So far as I know only three are here—

you, and my father, Mr. George A. Baker of Chicago, and Mr. John P. Holland of New York."

"But who are all these other men?"

The young man knew his way around. He named Senators and Congressmen and lawyers and politicians whose names were familiar to me, although I had been taking not the slightest interest in politics.

"There is one of the great New York bankers," said my acquaintance, pointing out a man who was buttonholing a Senator. They seemed to be on the most intimate terms. There were promoters and brokers moving through the crowd. The air was filled with tobacco smoke and noise and every one there seemed to wear an air of dominance and authority. Those who glanced at me seemed not even to see me. I felt of less consequence than a page boy.

"Lahey," I said to myself, "the church may be right, but you're in the wrong pew—"

After a time I was permitted to submit my plans. No one seemed to be at all interested in them or me. No one wanted to talk to me or ask questions. Later I was to learn that inventors are not highly regarded in government offices. This is said in no spirit of criticism, for it is a fact that many crack-brains develop what their owners think are inventions, and talk a witless jargon that is incomprehensible to the trained intellect and a violent annoyance to the unfortunate clerk who is compelled to listen. Inasmuch as inventors do invent things and as all progress may be traced to inventions, however, it has always seemed to me that the Government should make an intelli-

gent effort to sift out those who have something from the many who have nothing. I will have more to say of this after a while.

"That is all for to-day," said the naval officer who had receipted for my plans. "The Department will communicate with you later."

I was confident that my plans were superior to those of the Holland and Baker submarine. Every inventor presumably feels that way. I could name several points of superiority. It seemed to me, too, in my almost infantile ignorance of how things are done in politics, that my proposition would appeal to the chiefs in the Navy Department. I had not submitted a bid for the construction of a boat, for the very good reason that I had neither money nor backers, but I had asked that, if my plans were accepted, I be given a position in the capacity of constructor and my boat be built in one of the Navy's yards. It seemed to me that this suggestion was both practical and a promise of economy.

What I did not know was that there was the smell of business in the building of submarines. Let me emphasize that this statement is not necessarily critical. The friends of Mr. Baker and Mr. Holland, one or both, had aroused interest in submarines among members of Congress. An appropriation of \$200,000 was made, and it was the very natural feeling of those who had put this appropriation through that Baker and Holland were entitled to the first chance at it. I went back to Baltimore hoping to hear from Washington on almost every mail. Nothing came from

Washington, but one day I got a telegram from the editor of the New York *Tribune*.

"Understand Navy Board has approved your plans"—something like that—"and Lake submarine will be built. Will you see reporter for the *Tribune* in Baltimore?"

I gave the *Tribune* that interview, but Mr. Holland got the contract. Years later I met Admiral Baird, who had been a member of the Navy Board. This was after I had built successful submarines for Russia and Austria and had been engaged in an advisory capacity by other governments. Krupps of Germany had contracted with me also, but the company took advantage of a technical opportunity to slip out of the agreement, and while it built submarines of the Lake type it built them on its own.

Baird said, "Lake, I'm glad to meet you. We should have been building your boats all the time. Four of the five members of the Board voted for your plans in 1893, you know."

"Then why didn't you build my boats?"

"Because the Navy's advertisement had required that a bid be submitted for the construction of a submarine. You made no such bid.

"Four of us," he continued, "wanted to call you over to the Navy Yard and have you make up working drawings. Then we could build in one of the Navy's yards under your supervision. But they beat us."

My plans had called for a boat which has since become known as the level-keel or submersible type, the

only type of submarine now being built. The Holland boats were submerged by the operation of a horizontal rudder, placed at the stern of the boat, and the Baker boats by the use of side propellers which could be inclined up or down. The Holland boat was at that time called a "diving boat," and was similar to boats which had been built by the Confederates during our Civil War, and by French, Spanish, and English inventors. They all dived like a fish, and sometimes quite as unexpectedly. Many such boats have in this way taken the lives of their crews.

In fact, this type of vessel could not be controlled except by the constant juggling of the diving rudders, and frequently the most expert helmsman would fail to catch her in time to keep her from "broaching," or perhaps running her nose into the bottom. One of the German diving type drove herself forty-five feet into the mud on the bottom of Kiel Harbor, and it took a battle-ship to pull her out. A French naval observer, after watching a trial of one of the early French submarines, *Le Plongeur*, described her progress as "like a rubber ball bounding along, alternately striking the bottom and then rebounding into the air." The advocates of this diving type termed this alternate diving and broaching "porpoising," and tried to claim a credit for such performance, but the fact is that their boats could not be controlled. Men had to take fixed positions when the boats ran submerged and hold on like barnacles to a pier to keep from being thrown down and possibly injured. With my level-keel boat I was able to maintain sufficient static sta-

bility to permit the men of the crew to move about at will, and to fire torpedoes without the nose of the submarine being jumped out of the water.

The Holland Company had guaranteed a performance for the *Plunger* which was not only not met at the time, but which no boat ever built has been able to meet. But the art of building submarines was then in its puling infancy. A few skeptics like myself might be found who could place their criticism of the Holland boat on scientific ground but there were only a few. The extent of ignorance even in professional circles can hardly be understood, now that submarines have become a naval commonplace. Along with this ignorance was a quality of stupid arrogance, which made the life of an unfortunate inventor an unhappy one. The feeling of too many officers was that a mere civilian should not presume to challenge any position they might take. On one occasion I attempted to discuss my *Argonaut* with a graduate of the Naval Academy at Annapolis, who was in charge of certain phases of naval construction.

"My *Argonaut* can do thus-and-so," I said.

"That's impossible," he said brusquely. "Why do you try to make me believe a thing like that?"

"But it is not impossible." I felt as though the breath had been beaten out of my body, for the thing I had been describing was a commonplace of any day's run. "I have done it. I do it every day. I will prove it to you any day you will come on board—"

"I tell you it's impossible," he snapped angrily. "I am an expert and I know."

"But I've done it," I repeated.

"Don't bother me any more," he said. "I'm busy. I've got my letters to get out."

Yet the thing I had done, the possibility of which he denied, was a commonplace to any intelligent student of advanced physics, and is being done on every submarine built to-day.

CHAPTER V

Repulsed by the Navy

WHEN I learned that the Holland Company had been given the contract to build a submarine for the Navy, and that Simon Lake's plans had been thrown in the basket I lost my temper. Nature had not given me red hair for nothing. It was not that I felt any personal pique. The Navy experts could do what they pleased with Simon Lake and be blessed to them. But when they overlooked my evidently superior craft in favor of one that I knew would not work I was infuriated.

The best of it is that I was right. My submarine when it was built did everything I claimed for it.

The plans I submitted in 1893 contained several features that were new in submarine designing. Previous planners had concentrated on the underwater capabilities of their boats. It had seemed to me that it was also important that a submarine should be able to sail on the surface and should be fairly comfortable for her crew. A more or less helpless hulk would in the end prove nothing more than a sporting target for a surface ship of war, and a crew that suffered unduly might be willing to surrender and get away from misery. This may not be an idealistic way of looking at humanity, but it is not nonsense.

Therefore I had planned a vessel that could not only sail comfortably on the surface, but could make progress beneath the surface at any desired depth. The distance below the surface was controlled by what I called regulating vanes, or hydroplanes; after the proper depth had been reached by admitting water to the water-ballast compartments, these planes would keep the vessel on an absolutely even keel. A moment's reflection will show the superiority of this method over that used in Holland's *Plunger*, which would have progressed by a series of uncontrollable leaps and bounds, to the intense discomfort and even danger of her crew. This was demonstrated in other vessels of the *Plunger* type.

Nor was my vessel—which was to have been named the *Argonaut*—to be overfilled with machinery. When it was finally constructed it proved to be a very livable boat. A feature of the plans submitted to the Navy Department was that retractable wheels were provided, which made it possible to move over the sea bottom with ease and certainty. The wheels were to prove eminently satisfactory in practice, but they were called a dangerous defect when the Naval Board examined my plans in 1893.

"Imagine," one eloquent speaker is said to have urged the Board, "the sad fate of the crew of a Lake submarine if, in moving blindly over the bottom of the sea, it were suddenly to run over the lip of a precipice—"

Nothing would have happened, of course. A Lake submarine on the bottom of the sea is given negative

buoyancy. That is, it balances its water ballast and air content until it is just the least little bit less than buoyant, and so is enabled to stay on the bottom. If it were to run over the edge of a precipice, as the terror-tricken orator imagined, it would merely float slowly toward the bottom. The expulsion of the smallest quantity of water would start it rising again. But because no one before me had offered to attach wheels to the bottom of a submarine, the suggestion seemed unnatural and dismaying. The so-called experts could not open their minds widely enough to take it in. Of course, there *were* no experts on submarining then, for there were no working submarines.

Another feature of the Lake boat was that a safety chamber was included, affording means by which the crew could leave the submarine in case of disaster. It also provided for a double keel which could be released at will, thereby increasing the flotation capacity of the boat. Other features which are to be found in the successful submarine boats of to-day were planned for it. It will hardly be held against me, I think, that I got my dander up when the Naval Board turned me down. It is not likely that I used the modern slang, but I said what any angry modern would say: "I'll show 'em."

There was but one way, and that was by building a submarine which would do all I said my *Argonaut* would. I could see that I must produce evidence the value of which could not be denied if I were to get anywhere. It was obvious that I could not build a submarine for the Navy, for the Navy did

not want it. I had neither money nor influence available for an attempt on the navies of other countries. The one thing I could do, if I could get the money, was to build a submarine for commercial purposes. That was what I had always wanted to do, anyway. Not until my wife saw that advertisement in the Baltimore paper had I ever paid much attention to the possibilities of submarine use in war. It was the thought of reaping the treasures of the sea—more accurately, of the sea bottom—that had fascinated me.

New York, then as now, was the money center of the country.

"I'm going to New York and raise money," I told my wife. "Then I'll build my *Argonaut*."

"Fine, Simon," she said. "That's what you should do."

My father had come to Baltimore to help me with my business in improved steering devices and dredge-gear winders, and I proposed to leave him in charge of the establishment while I attacked the citadel. Before I could get away for New York it was necessary to tie up a number of loose ends, of course, and before they had all been knotted I read a paragraph in one of the Baltimore papers to the effect that the Navy Department might reopen the competition for submarine planning or building. Hope springs eternal in the breast of an inventor, and I said to myself: "At last the chance has come."

Then I reflected that when the bids were opened the first time I had not managed my affairs with any skill. No one knew me, and every one knew Messrs.

Holland and Baker, who had been active through their friends in getting the primary appropriation of \$200,000 through Congress. I had walked into the office of the Secretary of the Navy, a greenhorn, with a roll of papers in my hand, and I had received precisely the consideration I might have expected.

"This time," I said to myself, "I'll do as the others do. I will make myself known."

I asked Governor Leon Abbot of New Jersey, who knew the Lake family and me, very well indeed, for a letter of introduction to the gentleman who was then Acting Secretary of the Navy. Armed with this letter, my roll of plans, and with every morsel of fact which had to do with submarines ready under my tongue, I visited Washington again. Perhaps I had not thoroughly learned my lesson as to the proper method of procedure in dealing with politicians. Maybe some signaling and semaphoring should have gone before. At all events I walked into the office of the Acting Secretary and handed Governor Abbot's letter to a smiling colored man.

"The Secretary will see you in a few minutes," he reported. "Won't you sit down?"

There were others in the anteroom. We sat on the hard chairs the Government provides for the use of suppliants waiting on dignity, twiddled our fingers, eyed each other anxiously, and now and then exchanged remarks in whispers. Hours passed. At last, the Acting Secretary, dressed in his little brief authority, appeared in the doorway.

"I'm sorry to keep you waiting," he said to the

assemblage, "but I'm going to lunch. I'll see you at half-past two o'clock."

At half-past two o'clock he reappeared and walked quickly around the room, shaking hands with all and exchanging words with a few. When he came to me I said: "I am Simon Lake. I sent in to you a letter of introduction from Governor Leon Abbot, of New Jersey."

"Yes, yes," said the Acting Secretary brightly. "Governor Abbot is a good friend of mine. I shall be glad to talk with you a little later, but just now you must excuse me—in a few minutes I will send for you."

At four o'clock he reappeared in the doorway and said:

"I am sorry, gentlemen, but I will not be able to see any of you to-day, for I must sign my mail."

I did not know then that there is usually more than one door to a politician's office in Washington, and that the callers he wishes to see rarely run the gauntlet of public appearance in the anteroom. At nine o'clock the following morning I was on hand again. The same colored man met me with the same bright, kindly smile. The colored messengers in Washington are at least able to wear the appearance of sincerity and kindness. I told him that I was still waiting for the interview the Acting Secretary had promised me, and that I had sent a letter from the Governor of New Jersey to that official. The colored man returned from a visit to the inner temple.

"He'll see you in just a few minutes, sir."

At noon the Acting Secretary again appeared in the door to make the announcement of the day before:

"I am going to lunch. I will return at half-past two."

By this time my blood was beginning to circulate pretty fast. Every one who had been in the anteroom when I first arrived had either had his interview or had been passed on in some other way. A new crowd was on hand. I could imagine that some of them were grinning behind their hands at the way I had been treated for I saw that I was getting what the young folks of to-day call "the run-around." I followed the Acting Secretary into the hall and he noticed, perhaps, that the storm signals were flying. He put his hand on my shoulder.

"I am sorry to have kept you waiting this way," he said, "but as soon as I get back from lunch I will take up your matter."

This time his word was kept. He took up my matter, but unfortunately for me he dropped it again. He heard the few words I had to say and then sent for one of the colored messengers.

"Take Mr. Lake in to see Captain Sampson," he ordered. "Tell him that Mr. Lake has come to me with a letter from the Governor of my state, and that he has something of great importance to say about submarines. Tell Captain Sampson to listen to what he has to say and then report to me. I am greatly interested."

I was elated as I marched down the long corridor

in the wake of the colored man. But it must be that the Acting Secretary failed to give the Negro the right signal, for instead of taking me in to see the future Admiral Sampson he turned me over to another messenger and did not repeat the message the Acting Secretary had given him. After a time the second messenger came back from a visit to Sampson's office.

"The Captain will see you now."

First I was taken before Sampson's clerk and put through an examination. Perhaps I did not impress him, for there were no evidences of interest in Sampson's attitude when I was finally ushered in to his private office. I began to tell him of my boat and its possibilities. He deliberately turned his back to me, put his feet on a chair, looked out of the window, and in the most bored tones conceivable, said, "Oh—all right. Go ahead. But make it short."

By this time I had lost my enthusiasm. I had been treated to one cold douche after another and was fairly tongue-tied. After I had made the least convincing statement in the world to Sampson's chilly back I picked up my hat, walked out of the room, and vowed that I would never return until I was sent for. And I never did. In the end the Navy Department wanted me very badly indeed and asked me to help it out of a hole.

I returned to Baltimore about as angry as a red-headed man can be. It was evident that I had been deliberately insulted, and I could not understand why. It seemed to me that any citizen should at least be received with courtesy by the officials of our Gov-

ernment. Years later I had some legal business in New York, and as the former Acting Secretary had opened a law office there I called on him and asked him to undertake it.

"Yes, I am free now. I can take care of it for you."

"I met you once before," I remarked, "when you were Acting Secretary of the Navy."

He looked at me queerly and said, "I remember your visit very well indeed. You must have thought I gave you very cavalier treatment."

"I did think so."

"There's an explanation," said the former Acting Secretary. "Before I accepted the post of Assistant Secretary of the Navy—I was Acting Secretary when we met, you know—I had been the attorney for a company which proposed to build submarine boats. I knew they had spent large sums of money and that their officers were quite confident that their boats would be successful. I gave up that connection before I went to the Navy Department, of course, but it is probable that my knowledge of their affairs and my former association with them led me to give you less consideration than you were entitled to."

I went to New York in 1894. I had a few hundred dollars, complete faith in my plans for the construction of a submarine to be used for commercial purposes, no acquaintances at all, and not the glimmering of an idea of the manner in which money is raised for new ventures. My brother-in-law, C. E. Adams, took me to live with his family at Bayonne

and I rented a small office in the old Cheseborough Building at 24 State Street. 'Gene Adams was then assistant cashier at Pier One in the North River. Ultimately he gave up his job to come with me and has been my close and valued associate for over thirty years.

The passage of time has taken the sting out of my experiences in New York and now they are actually funny to me. At the moment they were heart-breaking. I wanted desperately to prove that 'my hoped-for submarine would be all that I claimed for it, but I was not a salesman, and after my experience with the Lake Canning Machine Company I was chary of getting into the power of other men. I put an advertisement in the papers without result. Then I started on what was to be a door-to-door canvass of the financial district of New York City.

CHAPTER VI

A Submarine Built of Pitch Pine

IT may be that the simplicity of my plans for a submarine—their absolute lucidity—frightened off the moneyed men I approached. If I had been wiser in the ways of the world I might have mixed a little mumbo-jumbo with my logarithms. As I remember my Bible, Aaron was just ordinary folks until he turned his walking stick into a snake. Then he took his proper place as a magician on the big time.

It was my air-lock that frightened people.

Later I proved the practicability of my device in practice, but at the time I had only blue-prints to offer. But, after all, certain of the more ordinary principles of physics are known to every one. It is a school-boy experiment to up-end a glass in a bucket of water and demonstrate that the compressed air will only permit the water to enter to a certain height. My air-lock merely carried this a little farther. A door opened from the main body of the boat into a small room, which the prospective stroller-under-the-sea entered. This in turn had an entrance into a sea-lock. Then the air-pressure in the air-lock was raised until it equaled the pressure of the water outside, the communicating door between the air-

lock and the sea-lock was opened, the diver stepped into the outer compartment, and a door was opened in the bottom—the floor—of the submarine. The pressure of the air kept out the water. The persons inside could look down to the bottom and, if the depth permitted, step out on it. In an ordinary diving dress the diver could walk into the water, do whatever he wished to do, and reënter the boat with no more difficulty than he would have in walking into a barn. But the story somehow seemed like black magic to those I approached.

Nerves were jumpy in those days, anyhow. Russell Sage had very recently escaped death from a bomb in the hands of an insane man. The newspapers were filled with lurid stories. Cuba was struggling to free herself from the rule of Spain, the European governments were in their accustomed state of irritation, Russia and Japan were beginning to make faces at each other, the Wall Street market was uncertain, and men who had money were putting in their whole time watching it. The set-up was difficult for the unknown young fellow named Simon Lake. Time after time my interviews ended in a runaway. The routine ran about as follows:

“Er—what is it you wish to show me, Mr. Lake?”

I explained that I had invented a submarine which was more efficient than any other.

“In it I can run around on the bottom of the sea as readily as though I were on dry land on a bicycle.”

The gentleman behind the desk would begin to wriggle uneasily at this point. I could see—I have

seen—the thought come into the mind of my vis-à-vis: “This man may be mad. I must watch him.”

Then I would continue, partly in desperation and partly in enthusiasm, talking against time. I felt that if I did not get out what I had to say in double-quick time the interview would end.

“It is possible to open a door in the submarine and walk out on the bottom of the sea. One could land on a sunken wreck and make a complete examination—salvage cargo—gather up valuables from the sea floor—”

By this time the man behind the big desk was often in raptures of fear. He would press the concealed button that summoned aid. A startled clerk would open the office door and peer in. The man of finance would offer me his hand.

“So glad to have met you, Mr. Lake. But I am very busy—perhaps some other time.”

Relieved sighs followed my exits from offices all through the downtown part of New York. I began to understand at the end of six months that I had taken the bull by the wrong horn. Instead of walking in on a banker to tell a story that sounded incredible and somewhat insane, I should have bulwarked myself with testimony that it was true and that my plans were feasible. It occurred to me that Charles H. Haswell might be willing to examine my drawings and testify that they were based on sound principles. Haswell was something of a hero of mine. He was the author of Haswell's *Pocket Book* on which I had drawn for facts when I first began playing with the

idea of building a submarine; he stood very high in the marine circles of New York City as a consulting engineer. I called on him at his office.

"I would like to have you look at these plans—"

Mr. Haswell was very courteous. He listened to my statement with interest. Then he said, "I believe you are on the right track. I will be glad to examine your plans and if they satisfy me I will make a statement to that effect. But it will cost you fifteen hundred dollars."

"Mr. Haswell," I said, "I'm broke. I haven't fifteen dollars, not to speak of fifteen hundred. But I want your opinion. If you will look at my drawings I will pay you some time. I don't know when."

As I recall it he laughed a little at this. It must have seemed a sample of pure impudence to him. But there is this to be said about men who are accustomed to deal in ideas. A new idea does not frighten them. Instead of running away they want to examine it. Haswell was curious about this new thing that I offered him, and he agreed without much persuasion to take his fifteen-hundred-dollar fee in stock of the company I proposed to form, if and when issued. After a thorough investigation he gave me an excellent indorsement, but even that did not interest the moneyed men to whom I applied. Their attitude was: "It is impossible to ride around the bottom of the sea in a wheeled vehicle. Any one knows that. A man who proposes to walk out of the door of a submerged boat upon the bottom of the sea must be mad. That is perfectly evident. Therefore, go away, Mr. Lake."

My money was gone. I could no longer pay rent, and there seemed to be no reason why I should continue in New York. I have seen so many ragged inventors haunting the doors of possible backers since then that I am heartily grateful I came to the decision to go away from the city and build my boat. At the moment I did not know how this was to be done. I hardly had money enough to pay my fare to Atlantic Highlands, where I planned to build my boat, no money at all for boat-building, and nothing to go on for ordinary expenses. The profits from my little business in Baltimore which my father managed for me barely sufficed to keep my family going. I do not remember that I worried at all about the monetary obstacles in my way. I was too set on doing what I wanted to do. At Atlantic Highlands, I drew the plans for the boat I had determined to call the *Argonaut Junior*. The full-sized submarine for which I had drawn plans had already been christened the *Argonaut* in my mind, but this new boat was to be a very little one and therefore rated as *Junior*. My aunt and her husband, Mr. and Mrs. Somers T. Champion, who lived at Atlantic Highlands, listened to my story with interest, and agreed to put a little money into my scheme. Perhaps my adventures among the New York bankers aroused their sympathy. At any rate they advanced the funds needed for the purchase of raw materials, and I built the *Argonaut Junior* with my own hands, assisted by my cousin, Bart Champion.

The boat was a tiny affair, perhaps fourteen feet

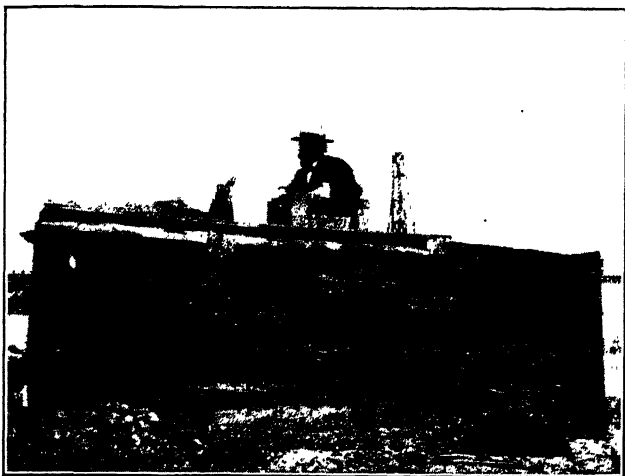
long, roughly in the shape of a flat-iron mounted on wheels, flat-sided and flat-bottomed. She had a double skin of yellow pine, with canvas between the skins, and was well calked and payed. A propeller was operated by a man-power crank, our compressed-air reservoir was a tank from a bankrupt soda-fountain, and the pump for compressing air had begun life as a plumber's hand-pump. With it we were able to compress air to a pressure of about one hundred pounds to the square inch, which was all we dared put on the old tank.

My diving suit really should have been preserved in a museum if only as an example of what can be done when one has to do it. I hammered iron into the form of an open helmet, into the front of which I fastened a dead-light, from an old yacht, and covered the whole—except for the dead-light—with painted canvas as far down as my chest. In order to overcome the positive buoyancy of the body I tied sash-weights to my legs, and hoped that this would permit me to walk around on the bottom. No circus clown ever looked any funnier. Bart Champion laughed himself into stitches when I tried the suit on.

"Let's go, Bart," I said one day. "We're ready."

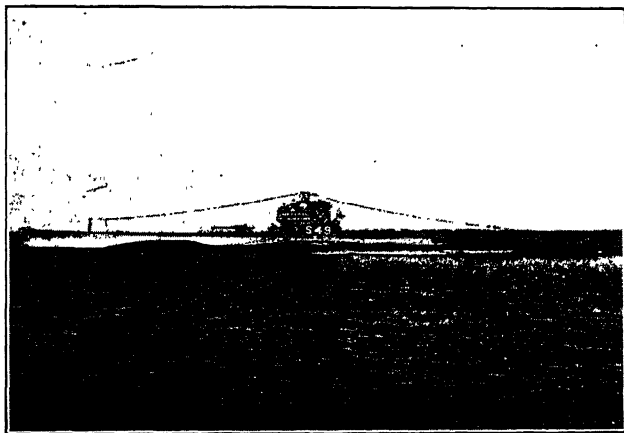
"Here's to the bottom of the sea," said he.

We wheeled the *Argonaut Junior* to the water's edge and launched her very informally. No one broke anything over her bow. Her pine sides were so frail that a hearty swing with a bottle might have cracked them, anyhow, and I knew that with her construction of flat surfaces she could stand little pressure. But I



THE ARGONAUT JUNIOR

This little boat, built of pitch pine, was the first submarine ever built that navigated successfully over the sea bottom and from which objects could be recovered through an open door.



A MODERN SUBMARINE

The S-49, of the United States Navy, demonstrates the vast strides made in the development of the submarine since the *Argonaut Junior*.

did not propose to strain her. We got her into the Shrewsbury River and paddled along the surface until we got to Blackfish Hole, where there was a depth of about sixteen feet. If we got to the bottom—an eventuality which every one who saw her assured us was inevitable—we planned to run on the wooden wheels which were mounted on axles outside the frame. Two were driving wheels, with a chain drive connected to a crank inside the boat. The third wheel at the stern was for support and steering.

“Open the valve, Bart,” I ordered, when we got into the deeper water.

“Down she goes.”

She sank beautifully. But when she got fully under, a half-inch stream of water spurted in through a bolt-hole we had forgotten to plug. It hit Bart in the back of the neck as he stood at a control.

“Ow,” he yelled. “Let’s get out.”

He plunged toward the little six-inch glass-covered porthole in the forward end of the boat, which had been put in to admit light into her otherwise dark interior.

“Where are you going?”

“Well,” he said sheepishly, “I intended to go out of that porthole, but it doesn’t seem likely that I can.”

We plugged the bolt-hole with a piece of pine and kept on going. Then we made our first underwater run. The *Argonaut Junior* ran across the river and “backed” to her place at the pier with no fuss at all. Her water-ballasted weight held her to the bottom so

firmly that my calculations were all borne out—not that I ever had the slightest fear that they would not be. Nor did I have any nervousness when I closed the hatch for that first trial run in a home-made submarine built of yellow pine. In fact I do not remember that I have ever felt any fear when I was in charge of a boat. I have only been nervous when some one else is taking her down.

Perhaps it is exhilaration that drives out fear. Once I was caught in a storm in a little schooner we called the *Mariquita*. Eventually it blew up so hard that I had to go out on the bowsprit to tie down her jib. I went under head and ears whenever she plunged, and yelled like a fool when my head came above water. I never had a better time. Another reason, perhaps, for my total lack of fear when I am in command of a submarine is my conviction that the only dangers to be feared are the twins of carelessness and recklessness. If everything has been seen to in advance, and no one makes a fool of himself, or forgets, a submarine is the safest kind of a boat to be in.

Bart and I had a lot of fun with the little *Argonaut* for a time. We ran around on the bottom of New York Bay and picked up clams and oysters and even speared fish through our doorway into the water. Perhaps the best fun I had at this time, however, was with my Uncle James Lake. He was the head of the Atlantic Highland Association, a minister of the Gospel, and a man of dignity and standing; he resented not only the fact that his nephew should be a crazy inventor, but that, if he had to go crazy and invent,

he should do it in Uncle James's parish. Many a time I have seen him deliberately cross the street to avoid meeting me. Uncle James might have carried the day against me in Atlantic Highlands, except for the fact that I had Uncle Somers Champion on my side. He was one of the leading men of the community, a notable veteran of the Civil War, a prominent business man of the little city, and warden of our church. A man upon whom Uncle Somers Champion cast the light of his countenance was entitled to the benefit of Atlantic Highlands' doubts.

"I think we will have to build a bigger boat," I said to Bart Champion one day. "People look on this as a toy. They think we are just running around having fun."

Uncle Somers agreed to this, and offered an amendment.

"Before you try to build a bigger boat," he said, "show the people what you can do with this little one."

We arranged a public demonstration and the mayor of the town and the president of the bank and all the other people of prominence accepted invitations to attend. We did our little tricks with the *Argonaut*, but some of the doubters seemed to feel that they were indeed tricks. They regarded skeptically the clam shells and old tin cans we brought up from the bottom. Uncle Somers suggested a test.

"We will all write our names on a shingle," he said to the mayor and the dignitaries, "and tie a sash-weight to it and throw it into the water. Then

Simon can go and prow! around the bottom and try to find it. If he succeeds we'll have to admit that his boat is all he says it is."

So the leaders of thought in Atlantic Highlands did so. A sash-weight was tied to the shingle by a fairly long string, it was thrown into sixteen feet of water, and, of course, sank to the bottom. Then Bart and I paddled the *Argonaut* away from the pier, closed the hatch, and submerged with as much impressiveness as we knew how to muster. In no time at all we had risen from the depths, I had thrown open the hatch, and waved the shingle triumphantly at the big men at the pier. No one could doubt that demonstration. I had proven that the *Argonaut* could do anything I had promised.

I have never before told a little secret connected with that event. Before submerging I had provided myself with a rather long hook, and when the *Argonaut* went under water all I had to do was to wave that hook around until it caught the string. It was a sound demonstration, of course, but the hook saved a little time and made it a bit more spectacular.

CHAPTER VII

World's First Successful Submarine

MY little *Argonaut* was the first submarine that had really performed. Other boats had submerged and had been driven for a little time under water, but the *Argonaut Junior* did everything I asked it to do. It crawled obediently around the bottom, it permitted us to stay under for as long a time as the air in the main compartment was breathable, and we could step out through the water-gate on the bottom of the sea.

But the public did not realize that the little boat was the forerunner of the fleets of submarines which are now to be found in every ocean. I think most seamen looked on it as a water clown, for it certainly did not look like anything on the earth or in the waters under the earth. They admitted that it did certain things never done previously, but their attitude was, "What of it?"

The newspapers of the day gave it plenty of space. Some of them carried full-page stories of the "strange thing which came up the North Shrewsbury and now lies high and dry on Barley Point," as the New York *Herald* told the tale on January 8, 1895. But for the most part the reporters seemed to hover between amusement and skepticism. One man wrote an article

in the *Philadelphia Press* of May 10, 1896, which annoyed me intermittently for years. He was, it seemed to me, sardonically enthusiastic over the possibilities of the *Argonaut*. He foretold that I "would wander along the bottom of the ocean and pick up the treasures that have accumulated there since the world began." Croesus, Barney Barnato, the Rothschilds, and all the other rich men whose names the reporter could remember were to be paupers by comparison with Simon Lake. "The owners will in a short time be rich enough to purchase a generous slice of the earth."

I would have had something to say to the young man who wrote this if I had seen him at the time, for I thought it a most unfair use of the weapon of ridicule. Years later I was his guest at a dinner of newspaper men in Washington, and when I was called on to speak the almost forgotten resentment boiled up in me. To my surprise he said that he had been wholly in earnest when he wrote the article.

"I still believe that what I wrote then was the truth," he said. "If you had stuck to your original purpose and hunted for sunken treasure instead of building military submarines for governments, you might to-day be one of the richest men in the world."

My position was weakened, so far as the informed public was concerned, by the fact that the Navy Department had given a contract to the Holland Boat Company, after making a presumably impartial examination of my plans. The obvious conclusion

was that my offering had been weighed and found wanting. For all that, a few friends were convinced, either by the boat's performance or by my flaming sincerity. My uncle by marriage, Somers Champion, was the well-intentioned agent through whom my greatest disappointment was brought about in the summer of 1896. He knew Nathan Straus very well, and told that gentleman of the performance of my little monster.

"I will come down to the dock and see what your nephew can do," said Mr. Straus.

I have every reason to believe that when he came to the dock at Atlantic Highlands he was in the humor to back me in my venture. He did things like that. No one will ever know how many youngsters Nathan Straus put on the road to success, and I felt that fortune was within my grasp when Mr. Champion told me what had been arranged. I tied the *Argonaut Junior* alongside the dock, in order that Mr. Straus could make a thorough examination before I began my demonstration. Then the bad luck began.

It was, I think, the hottest day I have ever known in New Jersey. There was not an inch of shade on the dock, of course, and Mr. Straus was accompanied by his wife. They were inseparable companions, as every one will remember. They looked into everything, listened with interest to my story, nodded their heads in comprehension when I explained how and why the *Argonaut* was able to make progress under

water, and while they suffered from the furious heat, as I did, they showed no signs of discouragement.

"Now," I said grandly, "I will submerge the boat—"

Bart Champion and I lowered ourselves through the hatch and I drew the cover tight. That yellow-pine and canvas interior was hot enough to melt iron. As I made my final preparations the Sandy Hook steamer *Monmouth* charged down the river with her load of gasping people hungry for sea air. Either she was running a little faster than usual, or else her bow wave struck some contrary current. The little *Argonaut* was thrown up against the dock and something went wrong with her submerging mechanism. Bart and I toiled inside that pine-board furnace until we had to give it up.

"Sorry," I said to the Strauses, "but something happened."

I went overboard in my crude diving gear and tried to fix the trouble. The wire rope had jumped off the gear which made the wheels go round, and nothing I could do helped matters. The Strauses sat there on that blazing dock for hours until they could literally stand the heat no longer. I saw Mrs. Straus's face begin to turn pale and at last they reluctantly gave it up and went back home. They never came back. I have always felt that if that infernal gear had not slipped when the swell hit the *Argonaut*, I might have been saved years of trouble and worry. The life of an inventor is full of trouble and worry, among a lot more desirable things.

After the Straus episode I stopped looking for men who could put in a great deal of money and began hunting for neighbors who could put in just a little, but who really believed in me and my submarine. I formed a company and began to issue stock in small amounts; it was during this period that I met a man whom I shall call Brown. He was a man of magnificent personality. He wore spats and a gold cable-chain that would have held a schooner, and had a large smooth face and an expanse of vest which made disbelief impossible. But he was more than a mere windbag.

Brown was a really brilliant engineer. He had a record of performance behind him and he dealt with big men and in large sums; when he said "Jack" Astor was his best friend the statement seemed perfectly credible. The last time I saw him was during the World War. In spite of the fact that twenty-odd years before we had parted on the worst possible terms, he called on me at my laboratory in Bridgeport, glowing with health and optimism. He was then engaged in promoting something or other which was to make millions.

"I am the man who devised the first plans for the fleet convoys which have made it possible to get supplies to England in comparative safety," he said. "A dickens of a time I had in persuading those old admirals in the Navy Department! But I made them listen to me."

Maybe he had done just that, too. He was then more than eighty years old, but he was a man of the

most engaging and forceful personality. I cannot too much stress the fact that he was a great engineer. But his character had a flaw in it, for after doing really worth-while things he became a "promoter." I was completely taken in by him at the outset. I might well have been ruined, and perhaps disgraced, except for one thing.

Brown's false teeth saved me.

I had stirred up a great deal of talk at Red Bank and along the Jersey coast with my little yellow pine *Argonaut Junior*, and people were beginning to show some sincerity when they talked of subscribing to stock in my company. One day Uncle Somers took me to a man whom he had known a long time, the cashier of a bank in a near-by town. It did not occur to me to doubt him.

"Simon," he said, "if you can convince me that your boat has commercial possibilities I'll put in five hundred dollars of my own money. What's more, if I think you have a really good thing I will interest another man, who is one of the financial swells. He knows the big bankers—Jack Astor and all of them—and if he likes your boat I will invest an additional twenty-five hundred dollars."

I was so excited over this prospect I could hardly sleep that night. The very next evening the "financial swell" appeared at the dock, and from the moment I saw him I was putty in his hands. He drove up to the bank in a beautiful open barouche in which a black coachman held the reins over a team of magnificent bay horses, and although that outfit waited

for him for hours while he talked with me in the president's room at the bank, the coachman looked as much like an image at the end as he had at the beginning. I had had little experience with the great men of the earth, and this imposing being swept me off my feet.

"Mr. Lake," he said, in accents of power that even yet sound in my ears, "you have the greatest thing I have ever seen. I am an engineer myself and can appreciate what you have done. Your boat is the marvel of the century. But if we are to be friends I must be frank, my dear fellow. You have the most absurd financial set-up I have ever seen. You will never get anywhere with it."

I do not remember just what I said. I know that I did not know anything about so-called Big Business. The Lakes have always managed their affairs more or less on the tea-cup-on-the-mantel plan. If there was money in the tea-cup we bought what we wanted. If there was none we did without.

"If you will let me handle this affair of yours," said the mighty Brown, "I will put it on its feet. I can interest Jack Astor and a dozen of the biggest men on Wall Street. The very first thing we will issue stock at one hundred dollars a share."

Of course I said yes. I thought I was unbelievably lucky to have interested such a man.

He lived in a huge stone house, and when I dined there with him he had several servants, and the table was covered with rich dishes and fine wines. He knew how to preserve domestic discipline, too, and was as

well served as any man could have been. In those days my meal often consisted of a sandwich and a bottle of coffee, and the service was confined to a wipe of my tarry hands on the legs of my overalls. It is not to be wondered at that I believed every word Brown said. He showed me two huge folios filled with testimony that had been taken in a patent case.

"They wouldn't be fair to me," he said, speaking of his former partners. "It cost them two hundred thousand dollars before they got through, but it didn't cost me a cent."

I went back to Baltimore to see what I could do about building the *Argonaut First*. We had had stock-books printed and had issued a call for 25 per cent of the stock issue we had sold. Out of this we realized about twenty-five hundred dollars, which was deposited in a bank subject to the usual safeguards. The head of the company which was building Holland's *Plunger* became the treasurer of our little corporation.

"I'll go in with you if my engineers like your plans," he had told me.

Evidently they liked the plans for the *Argonaut* more than they did those of the *Plunger* for this gentleman took stock. He not only paid for his stock when the calls were made, but he let me build on a pay-as-you-can plan. When we got a little money we would do a little work. When the treasury was empty work stopped.

No moneys were paid out except on checks countersigned by both the treasurer and myself. One day

Brown said to me, "I have an important matter for you to attend to, Simon. I want you to go to Baltimore and get your treasurer to sign up some checks and certificates in blank. That will enable me to meet the bills as they come in, without the present annoying delay in forwarding checks to him for signature. Jack Astor and some of his friends are ready to subscribe to stock, but they do not want their own names on the stock-books just yet. You know how these big fellows operate, Simon. The stock will be issued in the names of their clerks. That is customary."

At first I said I could not do what he wished, but in the end I consented to put the matter before the treasurer. Not the remotest shadow of a doubt about Brown had entered my mind up to this time. When I saw the treasurer in Baltimore, he said:

"This is an unsound request, Simon. I don't like it. I would not assent to it except that I believe you are an honest man. But remember that I am putting my business honor in your hands. Don't sign anything unless you are certain the deal is an honest one."

"I promise."

Brown was a great braggart. He boasted continually of what he had done and the things he owned and his personal strength. He especially liked to clash his jaws together.

"Did you ever see such strong teeth?" he would ask. "Not another man of my age has teeth like these."

He would snap his jaws until the teeth rang like

ivory. It never occurred to me to doubt that they were genuine until the day I returned from Baltimore with the checks and stock certificates signed in blank by the treasurer. Brown met me glowering. Two of the false teeth had been broken out in front and the fact that he was wearing store molars instead of the home-grown variety became glaringly evident. He was in a furious temper and stormed through the mahogany-filled offices of his own company in a corner of which the Lake Submarine Company had its meek existence.

"I'm selling half of my property," he fairly shouted at me. "I'm reserving the house, but I have no need for more than half of that huge lot. It's damned good, spot-cash deal. I'm tickled to make it."

He looked as though he dared me to disagree with him. I did not, of course. On the contrary I thought he was doing very well indeed in getting rid of property he did not need, which was only dead-weight on his hands. I knew that he had been somewhat pressed for money, for some of the stockholders in his company had invaded the office and had quarreled angrily with him. At times he had locked them out in the hall and refused to go to the door. One man had gotten a step-ladder and thrust his head through the transom.

"Let me in," he had yelled.

But Brown had not let any one in. His explanation had satisfied me, especially as I was spending most of my time in Baltimore, and did not know all that was going on. He said that he was resorting

to a technicality to protect his interests and that all would be cleared up at the next stockholders' meeting. But the complaints had perhaps a subconscious influence. When he finished telling me of the sale of his property he had arranged he said:

"I want you to do me a little favor, Simon. I'm in a jam over taxes and until I can pay them up this deal won't go through. I want you to lend me the twenty-five hundred dollars 'now in the company's treasury. I'll pay it back to-morrow."

"I cannot do that."

He went on as though he had not heard me. "While you're about it you can turn over to me those certificates your treasurer has signed in blank. I'll take them over to New York and dispose of them to Jack Astor and his friends."

"I won't do it," I said.

He yelled at me through the gap where his two front teeth had been:

"By God," he shouted, "you will do it or I'll break you."

That was not good Brown technic. He was not in the habit of losing his temper unless something was to be gained by it, and in threatening to break me he turned the current on through my red hair.

"Damned if you will."

"I'll build these boats myself," he bellowed, "I'll squeeze you out. I have patents myself—I don't need you—"

"You're through. You'll get out of the company right now. I notify you that you are out—"

We yelled at each other, probably incoherently, for some time. We were both mad all the way through. Then an idea seemed to strike us simultaneously. Two floors below our offices was the office of a patent attorney to whom Brown had introduced me. I had left certain plans with this man along with sketches to enable him to prepare drawings and specification for additional patents I wanted to take out. When Brown and I had this break it occurred to both of us to find out which of us the attorney accepted as his client.

The elevator happened to be standing at our corridor level, the door open, and the operator probably gaping at the two angry men. I got to it first and ordered the man to start down. Brown raced for the stairway, but I beat him in the elevator. At the attorney's door I elbowed him aside.

"Who do you recognize as your client—me or Brown? About those plans I left with you?"

The lawyer was perfectly calm. "Mr. Brown has been my client for some time on other matters, but of course you are my client in the matter of the plans and specifications."

"All right. Brown and I are through. I do not want you to give him any further information or allow him to see any of the new plans."

On my return home, however, I found that Brown had already taken a lot of plans to his office. Later he tried to make trouble through their possession. But it did him no good. We Jersey men may be slow to wrath, but we are moderately swift in action. My

uncle was a sort of Justice of the Peace—some kind of law officer, I've forgotten what—and we made Brown give up the plans the very next day. Later he took out some patents in an effort to force me to surrender, but they were of no value, because the Lake patents were all basic and covered everything.

Our treatment of Brown was quite summary. We first went to the bank cashier who had introduced him to me. It is not considered beneficial to a banker to be engaged in a scheme to injure a fellow-townsmen. He wanted to know how he could settle with us.

"Make Brown resign as vice-president and general manager, and turn over all his stock to the company, and get out. You know how to handle him. You can tell him what you will do if he refuses." Brown did all these things and, in addition, turned over all his patents to us. He made us no more trouble.

CHAPTER VIII

Case-Hardening an Inventor

THE bank cashier who described me as "a simple country boy" had been cruelly accurate. I had been too trustful. It did not occur to me to doubt the word of any man who was not widely known to be a liar. My narrow escape from ruin in the Brown incident rubbed some of that juvenile fuzz off the peach of my nature. If I had yielded to him he would have wrecked the company, just as he had wrecked other companies, but what is far more important he would have destroyed my reputation for integrity.

"You'll never do it again, Simon," the treasurer of the company chuckled. "One way to housebreak a pup is with the end of a broom."

Yet I had had rather hard sledding for years. My cold reception in Washington had taught me something of practical politics, the money men in New York had aided me to understand the true nature of a dollar, and I should have been more case-hardened. Brown really transformed me. Spats, gold watch-chain, high linen collars, and familiarity with big names never again impressed me. The first evidence of this change was developed in Baltimore, when I won a fight for ten thousand dollars. If it had not

been for Brown I am sure I would have been whipped.

The Holland Boat Company was having its *Plunger* built at a Baltimore iron works in 1896 which company was also building my *Argonaut First* at such times as the Lake Boat Company had money to pay for the work. The rivalry between the two companies was based not merely on business and professional but also on intensely personal considerations. The Holland people were able to say that the Navy Department had given them the contract, but on the other hand several of the practical ship-builders in the company which was building the *Plunger* had taken stock in the Lake enterprise. My first triumph came when the head of that company asked his engineers to examine my plans.

"They like 'em, Simon," he said. "We'll build your boat."

He had taken some stock in the company, and more than once that fact saved us from embarrassment, for he was able to charge, against his account for stock, some part of the money due his company for work done on the *Argonaut*. I had scaled down my original plans for the *Argonaut* until I was able to show blue-prints for a boat I thought I might be able to pay for. It was to be thirty-six feet, nine inches over all, propelled by a White and Middleton gasoline-engine both on the surface and when submerged, and the supply of fresh air was to be drawn in through a hose running to a floating buoy.

The land-going—or bottom-going—wheels, on

which she was to creep over the sea bottom, were of cast-iron and seven feet in diameter, and the ground steering-wheel in her nose was three feet tall. In general she followed the plan of the *Argonaut Junior*, with an air-lock compartment opening into the water-lock from which one could enter the water through an open door. A small conning-tower was provided in which the steersman sat when the boat was on the surface, and I planned for an iron keel that could be dropped if through any bad luck we were unable to rise to the surface after submerging. The one serious obstacle we encountered was the lack of an air-compressor. The best one we could find was not equal to the task.

"I'll design one," I said, "if you'll make it."

Chief Engineer Peacock and Chief Constructor McInnis of the construction company laughed at that. I was not an engineer. I was only an inventor, and the practical man in a shop has a half-protective, half-contemptuous feeling for this brooding and impractical creature.

"We'll stand you the best dinner to be had in Baltimore if you can draw plans for a compressor that will run."

I got to work on the plans and after a time brought them in. Peacock and McInnis went over them.

"The damned thing might work at that," they said.

When it was completed we were able to get fifteen hundred pounds pressure, which was more than we really needed for the depths to which I planned to

go. Nowadays, we use five thousand pounds pressure. Peacock and McInnis paid for a superb dinner somewhere on Eutaw Street, and a Baltimore dinner in those days was something to be remembered almost with reverence. The city was famous for its good food, and half a dozen of the old chop-houses were known from coast to coast. I believe the city still has an excellent gastronomic fame, but then it ranked in the hearts of epicures along with New Orleans, and perhaps San Francisco. Shortly after the dinner Peacock came to me.

"Any stock left, Simon?"

"Plenty."

"McInnis and I will be having twenty-five hundred dollars' worth each, if that suits you."

Their money helped me over one of the humps the Lake company persistently met. Then I learned that a gentleman named Rothert was interested. He was one of the rich and well-regarded men of Baltimore. About the time I went to work on him the Holland people also heard of him as a prospect, and between us Rothert was bombarded daily. The Electric Boat Company also entered the lists. Rothert finally put an end to the siege.

"I may put some money in a submarine company," he said. "I do not promise anything. But I propose to pick the best company for my money, and I cannot do that while you are all shouting in my ears. We'll have an open hearing, and may the best company win."

It was here that Brown, super-promoter, un-

doubtedly saved my bacon. That experience had taught me not to be impressed by words and music. Princes and potentates ranked along with mechanics after my hardening by Brown. It was a good thing, for the Holland Boat Company was represented by a fearsome array of counsel. There was a benchful of eminent lawyers, backed by two or three marine engineers, and the claims of the *Plunger* were presented in highfalutin scientific terms. Their occasional references to me and my modest *Argonaut* were toned between pity and amusement.

"Now let's hear from you, Mr. Lake," said Rothert.

I made my talk in non-technical language that any one could understand, and the lawyers and engineers grew restive. Presently they began to break in with the evident intention of confusing me. A few months earlier they might have succeeded, but I had been case-hardened. At last I said to Mr. Rothert:

"These gentlemen say I am not an engineer. It is true that I have taken no degrees.

"I did not go to college.

"But I have invented a number of things and they all work. I have not heard that my friends of the other side have invented anything. My inventions are practical and in everyday use. I have not had the education these gentlemen have, but I have been in manufacturing operations and I think that is a fair offset for an university.

"My *Argonaut Junior* has been under water and I have been in her. She was under perfect control. I do not think that any of these gentlemen have

been under water in their boat. The *Argonaut First*, which I am now building, will perform as perfectly as its small predecessor, for it will obey the same natural laws.

"I think that as a practical man, who knows what he is doing, I can speak with more authority than any one of the lawyers to whom we have been listening. My friends the engineers have demonstrated to me that they do not know what they are talking about when they discuss submarine operations. They lack experience and knowledge."

Mr. Rothert laughed out loud. "These gentlemen have called you an amateur, Mr. Lake, but I can understand what you are talking about and they have left me confused. Here's my check for ten thousand dollars."

That tickled me, of course. Throughout my life I have followed the same course. If I could not convince the other fellow by straight talk and practical demonstration I dropped him. I have never given a man so much as a cigar to influence him in my interest.

Both the *Argonaut* and the *Plunger* were launched in August, 1897. The *Plunger* had bad luck from the beginning, due to faulty design. When her engines were started as she laid alongside the dock she rolled over and, except for the fact that she rolled toward the dock and her conning-tower caught on the wooden structure, she must have sunk. To the best of my recollection she never did have a successful submersion. We gave the *Argonaut* a trial sub-

mersion alongside the dock and she worked perfectly. Peacock and McInnis carried on a half-serious, half-farcical quarrel over this initial trial.

"I'll be going down in her," said Peacock. "Simon will be wanting me along to tell him what to do." He would wink at me here.

McInnis would come back at him: "You will not. You are a married man and have no right to throw your life away. The damned thing might never come up. I'll go down in her and you'll watch me from the dock."

"No," Peacock would say. "It's better that I go down, because a chief constructor can be found anywhere, but if you were lost where would the company get another designer?"

In the end they both went down with me, which they had had in mind doing from the beginning.

The first open-water run of the *Argonaut* was in the Baltimore Harbor toward the mouth of the Patapsco. This was the first successful run of a full-sized submarine in the United States, to the best of my knowledge. When we reached a stretch of water in which surface vessels would not bother us we dropped to the bottom and cruised about. After about two and a half hours I felt a distressing pain in my head and Alec Cochran, who was an athlete, was terribly sick. The air intake seemed to be working all right, but it was evident that something had gone wrong.

"We'll go up," I said to Peacock. "I don't know what's happened—"

"I feel all right," said he.

I opened the hatch when we reached the surface and the moment the fresh air came in, the athlete Cochran dropped as though he had been shot. Peacock was the only one to escape a fearful nausea. None of us could figure out what the trouble might be. On the next day's run the same thing happened. Engineer Wilson's eyes were so bloodshot that they were frightening, and he wobbled as he walked.

"We'll go up," I ordered. "This won't do. We're passing out on our feet."

Once on the surface the hatch was opened and Wilson staggered toward the engine to shut it off, but he was so weak I was afraid he would fall on it and burn himself.

"Get out on deck," I told him. "I'll shut it off."

I pulled the switch and the engine backfired in the pit. That told me the story. The vessel was full of carbon monoxide and it is just the luck of the Lakes that we were not all killed. I managed to get out on deck before I fell, and I threw myself behind the conning-tower so that I could not be seen by any one in the little town of Spring Harbor. After a time I regained my senses and looked about. Peacock was standing over me.

"Peacock"—miserably conscious that my tongue was thick and my words twisted—"I know whash masser."

"Simon, you're drunk."

I have never been drunk on alcohol in my life, but I had all the sensations then of a bum filled to the eyes with waterfront "smoke." My head ached until

it seemed I could not stand it and ever since then I have felt the same thing under conditions of strain or when the air is bad. Carbon monoxide is about as bad medicine as any that can be put in a box. I have seen seventeen men at one time unconscious from it. In some cases it has been necessary to pull out a sufferer's tongue and hold it out by running a sail-maker's needle through it. Otherwise it will drop back in his mouth and he will choke to death.

When we got back to the dock I put in an intermediate tank which caught the backfire fumes. In subsequent tests I have run under water for ten hours at a time, powered by the gasoline-engine, and have never had the least bit of trouble. When I was sure I had gotten all the "bugs" out of the *Argonaut First* I decided to give a party and invite the press. I had learned something about the uses of publicity since my first artless days at Red Bank. It was not enough, I learned, to permit reporters to discover you. They insist on being shown. The principal papers of the eastern seaboard were asked to send reporters, and years later the *Baltimore Sun's* man showed me the slip of paper on which had been written his assignment for the day. "If Lake succeeds he's worth a column. If he fails he gets an obit."

It may not have occurred to the news editor that if Lake failed another man would have to be detailed to write the obituary. For the reporter was going along with Lake.

CHAPTER IX

The Devil in the River

NOWADAYS submarines are no more of an oddity than catboats. Even landlubbers do not get excited when they see one. Some of the fleet submarines are able to cover twenty-five thousand miles under their own power and keep the sea for an indefinite time. In spite of the angry denials of the advocates of the floating fortresses called battleships, the submarine is the only enemy these clumsy creatures need fear. It is possible that they might bombard each other without a conclusive result in a naval battle, for they have become mere honey-combed masses of hardened steel. But I do not believe that one can be built to be impregnable to submarine attack.

In one of the latest types of torpedoes the explosive charge weighs five thousand pounds. It is possible for a submarine to be so built that its progress under water is absolutely noiseless. The only safety for a battleship would be in a defended harbor, hunched behind booms and nets and a fringe of sunken mines. For the greater part of the World War the dreadnoughts were immured in such naval nunneries. Submarines can be munitioned nowadays from submerged bases, and neither the fighting craft

nor the mother ships discovered except through sheer accident. If another world war were to break out it is my belief that Great Britain could only be provisioned by means of a fleet of cargo-carrying submarines, for merchant vessels would be mere mechanisms for mass suicide.

These facts would be as true to-day if Simon Lake had never been born. Some other inventor must have come along to make submarines practicable instruments for war and peace, for progress can never be more than checked. Other men were at work at the same time on the same problems, notably in France. But I can truthfully assert that my little *Argonaut First* cleared the way. It was the first submersible to do everything it was asked to do, with safety and comparative comfort for its crew. It was the legitimate forerunner of every one of the magnificent craft of to-day. Even more than that, small and weak as it was, it was in some respects in advance of the best of them.

The boat created a tremendous sensation in Baltimore. I do not recall that scientists were greatly impressed, for their attitude generally was that what the *Argonaut* was doing could not be done. The Navy Department took no interest at all, which is not to be wondered at, inasmuch as it had backed the *Plunger*. But the newspapers scented a sensation and reporters were at my heels all the time. I gave them little satisfaction at first, for there were bugs I wanted

"But I'll take you for a ride under the water as soon as she's ready," I promised.

One of the first things I had to do was to rebuild the gasoline tank. Nothing is more infernally penetrative than gasoline fumes. No matter how carefully every opening has been sealed they will escape into the air, and if they are let into a closed room unpleasant things may happen. At first the tank was inclosed in the hull of the boat, but as that was quickly seen to be impractical it was rebuilt on her outer skin. When we were all ready for the press demonstration I took her down the Patapsco River for a final test. At dusk I brought her up to the surface and went ashore to buy some food at a little country store. I found the proprietor and half a dozen countrymen yelling with laughter.

"Jeff, he says he seen the devil," they told me.

"Who's Jeff? Where is he?" I had an idea that I knew the devil Jeff had seen.

"He's run home, a-yellin' and a-prayin'. That man he's sure enough scairt."

Jeff had been in a small schooner with another man when the *Argonaut* rose to the surface. They had stared at it, puzzled, but not particularly frightened, until the conning-tower hatch was opened, a faint glow came from the lamp that had been lighted inside, and I rose from the opening. Perhaps Jeff's past had not been altogether to his liking at that moment, for he and his partner ran their schooner ashore, hastily squattered over her bowsprit, and fled up the country road.

"Funniest thing I ever heard of," shouted the storekeeper. "Jeff's sayin' the devil riz right out of the water."

Then he turned to me. "Where'd you come from, Mister? And what do you want?"

I bought whatever it was that I needed, but I did not tell him where I came from or, that my submarine was lying at anchor out in the river. Some people are mighty touchy, I have found, and there are good rifle shots to be found along the river bank. As soon as I could do so I drifted the *Argonaut* out of sight from the shore. I have often wondered whether Jeff turned toward a better life.

On my first press excursion out of Baltimore we had twenty-two male guests and Miss Ada Patterson, who has since then made a high rating in journalism. The trip was tremendously successful. Two men, anticipating the need of a tonic, had brought along some champagne, and when no trouble developed they invited every one to drink the health of the *Argonaut* and its crew. Only one rusty old tin cup was to be found on board and we made a loving cup of it. One after another the guests were taken into the water-lock and the door opened so that they could dabble in the mud at the bottom of the river and rake up oyster shells and similar mementoes. The newspaper articles which resulted were marked by high enthusiasm, but they did not make a dint on the scientific and naval craniums.

"Just newspaper sensations" seemed to be the atti-

tude of laboratory and Navy. "Very regrettable and quite absurd."

Perhaps most of the incredulity came from the published statement that the *Argonaut First* ran around on the floor of the bay under her own power and on her own wheels. No one denied the boat could be submerged. There were witnesses that it had been submerged. But it was more difficult for me to prove by my non-technical witnesses that the *Argonaut* actually ran about on the bottom and those who might have been technical witnesses would not give me a chance to prove it. They only cited reasons why the *Argonaut* could not do what it was doing.

Yet during the months of experimentation that followed I ran the *Argonaut* around on the bottom for hours at a time, without having the least bit of trouble. The water ballast could be held at a point which gave the boat negative buoyancy, which means, in other words, that she was just the least little bit too heavy to rise to the surface without aid. A little puff of air from the compressors would blow out water from the ballast tanks and she would float up like a cork. I have climbed forty-five-degree inclines with her and bumped merrily over boulders the size of street-cars. When we came to a hole I had only to change the angle of inclination of the hydroplanes—the manageable fins—which were mounted on either side. Up she would go.

The secret was in these fins, or hydroplanes, as

I preferred to call them. Other submarines then used horizontal rudders or similar devices, usually placed near the stern, to govern the boat's horizontal level, but the governing principle was to dive rather than to submerge. The Lake boats did not dive. They took sufficient water into the ballast tanks to permit submergence to the desired depth on a level keel and then maintained that level by the manipulation of the multiple planes. My plan of controlled submergence is now in use on every submarine in the world.

But our own Navy Department would not accept it until it had been adopted by the navies of Europe.

I spent many happy hours that summer cruising along the bottom of Chesapeake Bay with the water-gate open, so that I might see what was going on at the bottom of the bay. Sometimes I speared fish through the open door, and often raked up the oysters for our evening dinner or set out trot-lines when the fishing promised to be good. If there were no fish to be seen there were no fish to be caught and the *Argonaut* moved on. At night the lights in the living compartment attracted fish by schools when we were submerged. During one ten hours' test one large fish kept his eyes glued to the dead-eye. If one of us moved toward the port he would dart away, but he never failed to come back. He had more interest in our submarine activities than many professors and admirals I knew at the time. I got some excellent pictures of fish looking into the window,

which were published in *McClure's Magazine* in January, 1899, and were probably the first of their kind.

I do not know and I never will know why some men seem to be so obstinately antagonistic to anything which is new. I tooled around over the Chesapeake Bay bottom all that summer, as though I were in a coach and four on Long Island roads, and no naval man would listen to my story. So far as I know no officer of any of the world's navies to-day believes in the obvious improvements possible in submarines. Officers laughed aloud at the thought of attaching wheels to the bottom of a submarine.

"A nutty idea," they said. "Thoroughly impractical." But the wheels made me a million dollars, more or less, and a million dollars are as practical as anything I know. It was years after my initial experiment in the Chesapeake Bay. I had been invited by the Russians to submit plans and specifications for submarines to be built in their own shops. So had other men. The Russians knew pretty well what they wanted, and in addition to other demands they submitted one test that was plenty stiff. "To be accepted boats must be able to penetrate the military harbor of Libau without being detected."

There is not a military submarine afloat to-day, in my belief, that could meet that condition. A three-mile-long and very tortuous channel had been cleared to connect the outer harbor and the inner military harbor, in which the ships of war were sheltered.

The entrance to the outer harbor was eight miles long, and a channel had been dredged through it to the entrance to the canal.

"You'll never see me," I boasted to the Russian officers directing the test.

"I will submerge in the outer harbor at eleven o'clock and at one o'clock I'll come to the surface in the inner harbor, alongside your biggest battleship, and you will not have seen anything of me at any time."

The operators of the competing submarines objected to this test. They knew they could not get into the inner harbor unseen, and they were right. Their boats leaped to the surface—those which operated on the so-called "porpoising" plan—and in any event their conning-towers could be seen when they rose to the surface to get a look at their whereabouts. My *Protector*-type boat—this was long after the days of the *Argonaut*—submerged when I said it would and came to the surface alongside a battleship. I could have blasted the big ship out of the water. Years afterward Admiral Sims said to me: "If the Chinese had had one of your old submarines during the first Sino-Japanese War, no Japanese ship could ever have gotten into Shanghai Harbor."

I got the Russian contract. Out of that contract other contracts grew. If I had not returned to the United States when the Navy Department officials finally called me I would have made a great deal more money. But I could not refuse my country.

It was the wheels—the wheels that were laughed at then and are probably laughed at now—that did the trick in Libau. I only needed to submerge the boat, locate the dredged-out channel, and then nose along it. It is not possible to see the route ahead when a submarine is under water, but when I felt the *Protector* begin to climb the sides of the dredged-out channel I merely shifted helm and got back into the ditch. It was the easiest and the simplest game I have ever won. I had studied the canal in advance and knew where the turns were made, and when I hit a turn I merely pulled back and felt for the ditch again. It was like feeling your way along the walls of a strange house in the darkness of night. You move slowly, but if you know where you are trying to go you'll get there.

I had been pretty well discouraged by my failure even to interest my friends in the Navy Department, and as I had done previously, when I built the little *Argonaut Junior*, I proposed to experiment in the commercial field. I was sure that valuable cargoes could be recovered from sunken wrecks and worked out several devices which were to prove useful. While I was fiddling with my *Argonaut* in the waters near Baltimore, the air filled with war possibilities. Cuba was trying to escape the Spanish rule, and the American papers were filled with stories of the fighting on the island, along with frequently expressed fears that we might be drawn in. One day I received a message from a great New York City publisher. "Will you

come to New York to discuss with me the possible sale of your *Argonaut*?"

Of course I went, but in the city I did not meet the publisher. Instead I was taken in to one of his managers, and we talked over the possible sale of the *Argonaut*. I had come provided with blue-prints and specifications, and at last I made him see that if I could do what I said I could do, and do it every time, I had something the Navy Department had not seen and should see.

"Will you go down town and have a talk with the men of the Cuban Junta?" he asked.

"Why not?"

I would consult with any one in those days. The more people I could interest, the better were my chances of getting the considerable financial backing I needed to make my submarine the success I knew it could be. The Junta then had quarters on Pine Street, and its business was conducted, so far as I could see, like that of any other office. If there were spies and beautiful women and agents provocateurs I saw nothing of them. The spokesman for the Junta heard my story and looked at my exhibits.

"Could the *Argonaut* go as far as Cuba?"

"She could go around the world."

"Will you contract to take her to Cuba and lay some mines in places we will point out?"

"Not me." The Lakes are a cautious and not a belligerent family. "We are not in this war. The United States is neutral. I do not propose to get myself into a clove hitch."

"In that case—and we understand your position—will you sell the boat?"

I thought that over for a minute, then said, "Yes. I'll sell. I'm not supposed to know what you want to do with her. If you use her to plant mines that's your business."

Cold Feet Cost Lake Three Million Dollars

IT was right here that I lost three million dollars, if one can say that money is lost which one never had. The members of the Junta seemed to be thoroughly sold on my *Argonaut*, although not one of them had seen it in action. They gathered in corners and held mysterious conversations which I presume had to do with the potential danger of the *Argonaut* to the Spanish ships of war. Now and then one of them would shake hands with me and pat me on the back and beam and say something in Spanish which was evidently nice.

"You will, of course, demonstrate what you can do," the Junta asked through the interpreter.

"I ask nothing better."

Karl Decker was assigned, by the great publisher who employed him, to play the part of liaison officer between the Junta and myself. Decker's name at this time was probably better known to the American public than that of George Washington. He had had many daring adventures in Cuba as a correspondent attached to the rebel forces, and one of his exploits was the rescue of Evangeline Cisneros from Morro Castle. The papers were full of it; the beautiful Cuban girl was the heroine of the day and Decker

was the man of the hour. It is perhaps possible that Miss Cisneros was not rescued from Morro Castle, but from a less impregnable stronghold, and that some good American money changed hands, and the young lady may not have been as lovely as she seemed to be on the first pages. These are merely cynical reflections. At all events Decker became a believer in the *Argonaut*.

"I have arranged that the most important man in the rebel forces shall witness your demonstration," said Decker. He told me the name of this gentleman but I have forgotten it. He was either a general or an admiral—I am sure of that—and looked to me precisely like a Cuban patriot should look. He was tall, sinister, black-bearded, silent, slender. At all times he wore a black cloak draped about his shoulders. He could have gone on the stage and played the part of First Rebel without change.

"If he is satisfied, you have sold a submarine," said Decker.

I had learned some business sense from my encounters with Brown and with business men. No price had been put on the boat by me and no offer had been made by the Junta. I thought it was time to get down to brass tacks.

"What's your offer?"

"The Junta has little money," Decker explained. "What funds it has been able to secure are earmarked for arms and ammunition. But the Junta is now certain of victory. Cuban officers are victorious in the

field and Spain is weakening. The bonds which are being issued by the Junta will soon be worth par."

"What are they worth now?"

It was a difficult question to answer, for as a matter of fact they were worth nothing at the time. Those who bought them did so because they wished to help Cuba. They could not be resold for a dime. This was explained to me, although I knew that much already. Yet I was prepared to dicker, for it would be the sale of the first submarine ever made in the world for use. Submarines may have been sold by sheriffs or transferred to the unfortunates who had contracted to build them, or disposed of to navy departments because the sailormen wanted to see what they could do. But if I sold the *Argonaut* it was because I was able to guarantee that she would deliver the goods promised. I asked again, "What's your offer?"

"Three million dollars in gold bonds of the Republic of Cuba. Worth nothing now, but certain to be worth par soon."

"Sold," I said.

The *Argonaut* was lying in the Patuxent, off the little town of Spring Gardens. Decker and the mysterious admiral and I went to Baltimore by train and then boated down the river to the anchorage. I explained everlastingly to Decker. He would listen, ask questions, nod his head enthusiastically, and interpret to the admiral. That saturnine person did not light up at all. He seemed to understand what Decker was talking about, but he asked no questions and made

no comments. We got in the submarine and drove out to a safe ground for the demonstration. No surface vessels were in sight, and the depths of the water was sufficient.

I closed the hatch and we submerged.

The admiral began to seem less nonchalant. He glared at Decker and asked questions. Decker explained. I had not the remotest idea what it was all about, for I was watching my engines and gauges.

"Now," I said, "we will go into the air-locks."

The admiral was as jumpy as a frightened girl when he found himself cooped in this bare chamber with two men, one of whom was practically a complete stranger. I fear he had less than a soldierly confidence in Decker. I told Decker what I was about to do, he told the admiral, and I turned on the air. It hissed into the air-lock and the pressure began to rise. The admiral went completely mad. He leaped in the air and swore in Spanish—I may not be a Spanish scholar but I know profanity in any language and deprecate it—and, waving his arms, seized Decker by the shoulders and pulled him around. He pointed at me.

"Assassin!" he screamed.

Maybe it was not "assassin." I did not know the word, but the meaning was apparent. Decker tried to calm him and waved his arms and outyelled the admiral and shook his hands and talked sometimes low and sweet and sometimes blunt and dominating. The admiral began to screech like a parrot.

"It's no use," said Decker. "He's lost his nerve completely. We'll have to go up."

So we went to the surface again and returned to the anchorage. The admiral went ashore with Decker and me. Just as he got his feet on the land a street-car crossed the long bridge over the river, and he ran for it like one possessed, his long black coat streaming out behind him. I never saw him again. The sale of the *Argonaut* was definitely off. Yet it was not many years before those gold bonds of the Republic of Cuba were selling in the open market at par. If the admiral had not gone batty I would have had three million nice golden dollars. It was a disappointment, but I took it philosophically. Already I had learned that an inventor's life is full of disappointments.

I suspect that if one could get at the truth the mystery of the sinking of the *Maine* might be unraveled, taking this incident of the *Argonaut* as a primary clue. In our fragmentary conversations at the headquarters of the Junta in New York we had discussed the possibility of laying mines in Havana Harbor. The *Argonaut* was not equipped with torpedo tubes, not only because torpedoes were not yet a thoroughly practical weapon, but because I had intended the boat for commercial use. But it would have been the easiest thing in the world to open her water-gate and place a mine just where it would do the most harm.

"But how would it be exploded?" the Junta had asked me.

It would have been easy enough to attach an external trigger so that a mine would explode on contact. But war was—perhaps—not quite as ruthless as it became during the period beginning with 1914. Military men were not yet willing to risk the lives of innocent civilians on the chance of sinking an enemy ship, and so the preferred method was by shore control. Wires were laid from the mine to a control station. By the commonplace method of triangulation it would be possible to decide if and when an enemy ship were immediately over the mine. A pressure of the key and the trick would be turned.

I think the Cubans planned to use the *Argonaut* in mining Havana Harbor, in order to sink the Spanish war-ships which were almost continuously resting there. They rarely anchored, for technical reasons, but instead were tied to buoys. Some of the buoys were set apart for the use of the Spanish ships of war, and others for commercial vessels and war-ships of other nations. It is at least possible that a mine had been towed out into the harbor by night and submerged alongside of one of the buoys earmarked for the Spanish ships.

By error or intention, the *Maine* was directed to tie up at this buoy.

It is unlikely that any one will ever know whether our battleship was sacrificed by the Cubans in order to get us into the war, or whether the mine was exploded by mistake under the American ship. At all events we were at war with Spain not long afterward.

In the meantime I had been prowling around the

bottom of the Patuxent in my *Argonaut*, discovering precisely what she could do. I had in mind that if I could find some laden wrecks money might be made by salvaging their cargoes. I found the wrecks—plenty of them—but none with cargoes that interested me. I remember that on one occasion I submerged alongside the hulk of a tug that had sunk in seven fathoms of water, after a fire. I put on my diving helmet and went out into the water to investigate. I had been trying out a search-light which had been fairly satisfactory in clear water at a distance up to forty feet, but I was not using it on this occasion. After I got to the bottom I found it difficult to stay there, for I continually floated toward the surface, and had to kick vigorously to get down again. To make things easier I worked toward the tug.

"I'll just get hold of one of her ribs," I said to myself.

I put out my hand and grabbed hold of a toadfish—a horrid, slimy, disgusting toadfish. I shall never forget the nausea that almost overcame me, locked up as I was in the diving helmet, but I stuck it out for half an hour. Then I began to feel queer. Something more than mere stomach-sickness was wrong with me, but I did not want to go up, for I did not want the boys to know that the old man couldn't take it. At last I could stand it no longer and up I went. When I took the helmet off some one cried: "What's the matter, Lake? You're swelled up like a toadfish."

My head was swollen like a toy balloon and my eyes half closed. My reason told me that toadfishes

are not poisonous, but I'll admit that I had rather a worried moment before I discovered what was wrong. In making my dive I had struck the air-valve and half closed it, so that I had been breathing carbonic-acid gas instead of the good clean air the boys thought they were pumping down to me. It was a small matter, but an intensely unpleasant one. To this day I think of it whenever I see one of the abominable toadfish in a catch at sea.

The war with Spain was now in full blast, and I made another effort to get into my country's service. I had demonstrated to my satisfaction that I could lay mines or tear up cables without the least difficulty or interference, and it seemed to me that the *Argonaut* should be of real value to the United States. I wrote a letter to Theodore Roosevelt, then Assistant Secretary of the Navy, and told him what I had been doing and what I could do, and put the *Argonaut* absolutely at his service. He replied to me immediately. Unfortunately his letter seems to have disappeared from my files, but the gist of it was: "I believe every word you say. Your explanation of the *Argonaut* is a convincing one. I shall arrange for the appointment of a Naval Board to take this matter up—" Years have passed and my memory may be somewhat in error; however, I am sure that I have stated accurately the contents of his letter. But there were many things to divert his attention and time went on. Presently he arranged to get into the war himself—in person, as the movie stars say—and he formed his Rough Riders. I do not know whether he

ever put the matter before the rulers of the Navy. At all events I heard nothing from them—a condition to which I had long been reconciled. I decided I would give a demonstration of my own.

Hampton Roads had been mined as a protection against enemy ships. Later on we learned that the Spanish fleet was not a formidable one, but then we knew little about it or its whereabouts. I moved down to Hampton Roads and browsed about in the channel as though the *Argonaut* were a peaceful old cow and the channel a pasturage filled with succulent grass. Once I drifted past a mine at a distance of five feet and saw it plainly through the window of the conning-tower. It was a weird experience, although I believe that none of them were set to explode on contact. Thanks to the fact that the *Argonaut* moved on wheels and that I could look out of an open window onto the channel bottom, I traced the cables and located the mines. I thought I would be able to convince the hardest-headed naval officer who ever put on a cap.

I told the Navy what I had done.

The Navy did not respond. The inference was that the Navy continued not to be interested. The Navy's sentiment seemed to be that Simon Lake was in again, and nothing could be done about it, but that no human power could make the Navy listen to him. But I am a persistent person. Later experience proved to me that I was right in my early conviction that there is hardly anything that cannot be done by a man who knows his business and keeps at it. I called

on the commanding officer of the army post at Fort Monroe.

"You say you have done these things," he grunted in reply. "Then why do you come to me? Why don't you go to the Navy?"

"I have been to the Navy. The Navy will not listen."

There was a pause for reflection. The Army and the Navy are competitors. Neither is precisely fond of the other. The commanding officer obviously did not believe the story I told him, but no doubt he thought that if by any chance I were telling the truth and he could prove it, he could pull the Navy's cap down over its ears. He said:

"Here. Take this chit. Go see our engineer officer."

I have forgotten the names. I took the commanding officer's note and called on the engineer officer. He gave me the most impressive impersonation of a bored man I have ever known.

"Not interested," said he.

"Don't you understand," I asked, "what it is that I have done? Don't you comprehend what this might mean in wartime?"

"Well," he said, "what you tell me isn't possible. I don't believe a word you say."

"I've been all over the cable field," I shouted at him. "I can draw a plan of it. I can show you where every one of your cables is and where your mines are—"

The engineer blew up. "Don't you ever do it again," he yelled, bringing his chair down on its

four legs. "Damn it, I won't have it. If I catch you at it I'll lock you up."

His reversal of position was only partial, however. Apparently he was convinced that I had done the things I claimed, but he refused to see their significance. Simon Lake and his submarine were not to be considered and to hell with them both. So I left Hampton Roads and went down to Virginia Beach to play around with the *Argonaut*. The channel was closed at sunset then, because of the war, and notices had been sent out that any vessel caught in the prohibited areas might be fired upon. One day we ran well out in the Roads, and were so interested in what we were doing that nightfall came before we were aware of it.

"We're liable to catch it this time, Simon," said the men.

"Catch what?"

We submerged and crept into a pleasant anchorage. Then we came up until only the conning-tower was visible and lay there all night, while the searchlights played over the water. If we had been seen the guns might have opened on us, but we could not be seen. I might have gone ashore and told the Army and the Navy what I had done, but it is never wise to wound the amour-propre of commissioned officers. The two services jointly held that I could not do the things I said I was doing every day, and that if I were caught doing them they would throw me in the brig. They were not very consistent, but they were at least firm.

It was at this time that Captain Sigsbee, who had been in command of the *Maine* when she was blown up in Havana Harbor, came into Hampton Roads with the *Yale*, a fast liner the Navy had taken over. He had as assistants two young lieutenants who had been in one of the disastrous attempts to cut the Spanish cables off Cardenas. They visited me on the *Argonaut* and when I told them what I had been able to do in locating mines and cables they asked Captain Sigsbee's permission to make a trip with me. A young officer is nearly always more willing to listen to a new idea than an older one who has been tied up by years of red tape and precedents.

"No," said Sigsbee. "A submarine is a dangerous craft and you are the only naval men I have. I won't take the risk of losing you."

The youngsters were confident that if they had been given the chance they could have ripped every Spanish cable off the coast of Cuba, but they did not get it. It was not until eight years later that a Board appointed by President Taft watched a test conducted off Newport, and reported that this method of cutting cables or laying mines provided the best harbor-defense means known to its members. Even now the American Navy does not own a submarine with these characteristics, although several other countries have undersea boats equipped with them.

The Argonaut Makes Good

I WAS bitterly angry at the Army and the Navy at this time. Of course I was. I had developed a submarine which, if not perfect—forty years later the submarine is not perfect—at least was able to deliver the goods I promised and no other submarines could or did. I was thirty-two years old, full of strength as a barracuda, red-headed and, as I believed, a deeply injured man. I saw other men with other submarines get sympathetic hearings from congressional committees and naval authorities, and money and contracts. I was the only man who could do anything under water and I was not even permitted to show what I could do. Because what I did—was doing every day—was so far ahead of what any one else had done, I was looked on as a nut. The joint attitude of the Army and Navy was: “Lake is a crank and a liar. He cannot do what he says he does. If we catch him doing it we’ll knock down his ears.”

Years passed before I thoroughly understood the reasons for this contemptuous neglect. Mind you, I am not the only inventor to be treated like a bound-boy. Only within a comparatively recent period has invention come into its own. Nowadays scientific

articles fill the newspapers. A man who can do something in a new and more efficient way and can prove it is sure of a hearing. Even the armed services do not entirely close their ears, for the drums of publicity are forever thumping just outside headquarters' windows. Forty years ago the Army and Navy were something between a social club and an exclusive cult. Generals were still wearing side-whiskers and epaulets, and civilians were poor creatures only fitted to shoulder arms and swab decks.

The fundamental reasons why inventors were kept at arms' length by the services are still in operation. Perhaps they always will be. It may be that they are unavoidably a part of the system.

I was not the only inventor—not by an entire class of inventors—to suffer from this military attitude. Practically every worth-while weapon offered to the Army and Navy either has been developed because of civilian pressure or has been accepted in Europe before being taken up by Americans.

During the Revolutionary War Dr. David Bushnell of Saybrook, Connecticut, invented a submarine that was actually practicable. Only because of an accident it failed in its initial test, and yet it so thoroughly frightened the commandants of the British ships then stationed in the Hudson that skippers slipped their cables and went down to Sandy Hook. He actually sank a schooner by means of a floating mine. General George Washington complimented him for his ingenious device. But the military authorities of the day so derided him that he left the

country. Years later he settled in Georgia under an assumed name and practised medicine there until he died.

Robert Fulton was not recognized by his home government and the only recompense he ever received for his submarine experiments was from the British Government. Ericsson was laughed at by American military men and built his first *Monitor* with private capital. When she sank the *Merrimac* she was on builders' trial and had not been accepted by the Government. Maxim went to England to get his gun accepted and Hotchkiss first found backing in France. The Wright brothers were laughed at until France accepted their airplane. The Browning and Lewis guns were refused here until France and England had proved them.

No American will admit that the officers of our Army and Navy are not as intelligent and alert and patriotic as those of any other nation. It is the system that is at fault, as I see it. Without a rigid discipline an armed force is no better than a mob. For years our Army and Navy were small in numbers and promotion was slow and difficult. A graduate officer of West Point or Annapolis who "stuck his neck out," as they say nowadays, was a man marked with a cross. If a young man favored a new thing and the new thing proved successful, he made fools out of his superiors who had refused it. A wise young man took no chances. If the new thing failed the young man who favored it was lost. Each superior officer was moved by the same considerations. If he accepted anything

sent up from below he made himself responsible for the possibly wild ideas of an almost unknown young man. If it failed he took the punishment, but if it succeeded the young man might get the credit.

The easy way was to say "No" to all the tribe of irresponsible, cockeyed inventors.

Many of them *are* cockeyed and irresponsible, too. Quite recently I have had plans submitted to me for the building of perpetual-motion machines. The Patent Office records are littered with schemes that can never work. Men are continually sending me blue-prints of mechanical idiocies. If I examine them I waste my time. If by chance one of them is thoroughly practical and I have been at work on the same idea myself, I am exposed to the possibility that the other man will charge me with theft if I patent mine. An instinct of self-preservation has led me to refuse to look at most—not all—of the plans that are sent me. I am told that the movie magnates have been compelled to adopt a parallel course. They do not read scenarios that have not appeared in print, and thus save themselves from charges of plagiarism.

At any rate, the end of the Spanish War found me in possession of a submarine that was admirably practical but which had not secured a kind look. I spent months at Hampton Roads in exploring three wrecks which I had located, but as I lacked salvaging equipment I could not recover their cargoes. There was nothing more to be accomplished at Hampton Roads, for what I needed was money for more building, and the money simply was not there. But one thing had

been accomplished. I was no longer an unknown man, and the press had given my little *Argonaut* a tremendous amount of sensational publicity.

"I will take the *Argonaut* around to New York," I announced.

"Murder and suicide," said friends and enemies alike. "That queer thing can never meet the seas outside the protection of the land. She will roll over and drown—"

"The *Argonaut*," I protested, "is a perfectly seaworthy boat."

I was right about the little vessel. She proved to be perfectly seaworthy, but the Atlantic Ocean hardly played the game with us. We chugged out of the Chesapeake Bay, through the Delaware and Chesapeake Canal and the Delaware River, as placidly as though we were sailing a paper boat in a bathtub. But when we got "outside" we found that things were happening on a big scale. The November storm of 1898, in which two hundred vessels were lost along the coast, was blowing up. If we had suspected that we were to be in for the worst kind of bad weather, we would have run for safety, of course, but we did not. Until the storm had become so bad that there was grave risk for all shipping at sea, we really did not know what we were in for.

The *Argonaut* had very little reserve buoyancy, for she had been planned to operate under the surface and on the bottom. The more reserve buoyancy she had the more difficult it would be to submerge

her. Furthermore, she was cigar-shaped—that being the form which submarines had taken up to this time—and little attention had been paid to shaping her hull for operating on the surface. She grunted along through the storm, barely showing a segment of her hull above water at any time, and for the most part practically submerged. Inside the conning-tower we were blinded by the masses of water that continually washed over the boat. We steered by compass, of course, but it was also necessary that the enormous seas be met squarely. Otherwise, seaworthy or not seaworthy, there was an excellent chance that the *Argonaut* would be rolled over like a cork.

"I'll go outside," I told the boys.

"Somebody'll have to," some one said.

There's no nonsense about a sailorman. When a thing has to be done he does it. My men knew that a man lashed to the outside of the conning-tower, over which the seas washed almost as though it were a rock at half-tide, would not be precisely cozy. They thought nothing of it. Neither did I. It had to be done and I was the man who could do it best, for I knew the *Argonaut* as no one else did. The water froze on me as we plowed on, and by the time we got into the "Horseshoe" back of Sandy Hook, at three o'clock in the morning, I was a block of ice. The experience did me no harm. Out of it I got confirmation of two previous impressions.

The first was that the *Argonaut* was not long enough to be handled easily in rough water.

The other was that she had to be reshaped. The cigar form did not give her enough buoyancy.

As soon as it could be arranged financially, therefore, I had her cut in two, and a twenty-foot-long mid-section slipped in. Of far greater importance, however, a ship-shaped form of light plating was built around and on her pressure-resisting hull. This superstructure was opened to the sea when it was desired to submerge her, and water was permitted to enter the space between the inner and the outer hulls. This equalized the pressure on the light outer plating and prevented the buckling which must otherwise have resulted from submerged pressure. The superstructure also increased her buoyancy when on the surface from 10 to about 40 per cent and she rose to the seas like an ordinary vessel, instead of wallowing sullenly through them like a floating log.

This plan of hull construction has been adapted by all the builders of submarines since then. At the same time I changed the design of the original cigar-shaped hull, and devised one with rising axes. This overcame the danger of diving by the head which was a defect of the cigar-shaped form, increased the speed on an equivalent displacement, and gave a considerable increase in metacentric height over a vessel of equivalent length and beam. This ship-shaped form of hull is only suited to level keel submergence, and must be controlled by hydroplanes.

Incorrectly informed writers have given credit for this improvement, which made sea-going submersibles possible, to the Krupps of Germany, to Naval

Constructor Laubeuf of France, and to Naval Constructor Laurenti of Italy. It is a fact, however, that on April 2, 1897, or more than a year before we made our voyage "outside" to Sandy Hook, I had applied for a patent covering these features. Years later the Krupps contracted to build submarines for the Russian and German governments, and decided to adopt the Lake type of submarine. A contract was drawn with them for the use of my design, which they accepted by wire. The records of the patent offices of the world show that mine is the pioneer patent covering this type of vessel.

The *Argonaut's* successful battle with the storm made one of the sensations of the day. The papers were filled for a week or more with the tales of vessels that had been lost at sea, and the story of our half-submerged wallowing into safety was one of the high bits of color.

The tale was printed in France, and Jules Verne—whose *Nautilus* had been responsible for my descent into the sea in a submersible—cabled congratulations. That was one of the finest moments of my life. I have always maintained that Jules Verne was even more remarkable as a scientist than as a writer of romantic fiction. He had that penetrating imagination without which no inventor gets anywhere, coupled with an extraordinarily exact knowledge. There is to-day no better reading to be found than the novels of Jules Verne. I reread them from time to time, not for the purpose of reviving the memories of my youth, but because they are great stories.

Ice-Water Cure for Pneumonia

ONE of the other consequences of that voyage of the *Argonaut* through the storm of 1898 was that I was at last accepted seriously by the public. It was only natural that heretofore the publicity given to the *Argonaut* and its inventor had been of a more or less sensational kind. Reporters knew that never before had men been able to move about on the bottom of the sea, to reach an arm out of a window and pluck a sea-flower or gather a handful of oysters for dinner. The fact that they were able to do these things gave them a thrill and they wrote the most glowing stories. But I suspect that the mass of the public put the *Argonaut* and its inventor on the freak shelf, along with the men who talked of building automobiles and flying-machines and those other tomfools who were wasting time over what was later to become known as the wireless.

The good, average men who had a little property and a fair education liked to listen to us. We were exciting, for one thing. Our wild talk gave them a feeling of superiority, for another.

But after the *Argonaut* had smashed and rolled her way through the November storm to safe anchorage in the Horseshoe behind Sandy Hook some of

the men whose names stood for reliability as well as enterprise in the journalistic world began to take an interest in us. Ray Stannard Baker, who was then the bright shining star of *McClure's Magazine*, which itself was the forerunner of many breaks with musty precedent, got in touch with me one day. He said he wanted to have a talk with me about the *Argonaut* and submarines and exploring the sea bottom and the possible usefulness of these strange devices in the next war. The fact that the *Argonaut* had been able to come through one of the worst storms in recent memory along the Atlantic seaboard had impressed him. It is possible that up to this time he had looked on it as a mere toy. I do not know.

"I want to bring an artist with me," he said, "to get a sketch of you. A man named Stevens. Sure you won't mind?"

"I'd like to have him."

I was then living with my family at Atlantic Highlands, in a big old house that had been standing empty for the better part of the previous season. Something had gone wrong with the heating apparatus, and when Baker and Stevens arrived the house was as cold as the middle cavern in an iceberg. The family was able to exist around the kitchen stove, I suppose, but I could not take my distinguished guests there, even if the family had welcomed them. Baker kept his overcoat on and Stevens had a sweater and a muffler.

"But I don't want to sketch you in an overcoat,"

said Stevens. "If you don't mind taking off your coat, I'll be through in fifteen minutes."

Of course I did not mind. I was as husky as a water-buffalo, I had come through the battle with the storm, lashed and iced to the outside of the conning-tower and soaked with November seas, and had not reported even a sniffle, and I had never yet come to the end of my reserves of strength. Sometimes I spent days in alternating between the cooking temperature of the *Argonaut* when her engines were at top speed and the frosty winds of her exterior, half soaked at that and never the worse for it. My physical endurance approximated that of a Chesapeake Bay dog. But there is a proverb about pitchers that keep on going to wells. Mr. Stevens' fifteen minutes stretched to four hours, and next day I woke up with a little fever and a tightness in my chest I had never felt before. My wife was worried.

"Better stay in bed to-day, Simon," she said.

"Just for a little while. I'm tired, somehow."

The little fever developed into a hot fever and the tightness became a pain. My wife sent for Dr. Fay and the word came back: "The Doctor is too sick to come. But he sent along a thermometer and said that Mr. Lake should hold it in his mouth for one minute. Then it is to be returned to him."

I had heard of self-registering thermometers but I had never seen one. I held the tube in my mouth until I thought the temperature had been registered, and then took it out and tried to find out how much

of a fever I was running. But I couldn't find the register. I fooled with it for a time and then called the messenger and sent it back to Dr. Fay. A hard snow had set in and the pellets of hail were rattling against the windows like fine shot. In an hour or two there came a knock at the door and there stood Dr. Fay wrapped up in all the clothes he could find, with his eyes swollen and watering and a cough that jarred the house.

"My God, Simon," he said, "are you still alive?"

"Why shouldn't I be alive?"

"Because I never heard of a man who had a temperature of one hundred and eight and lived."

He tried the thermometer again and found that while I had a hot fever, the register was nowhere near one hundred and eight. After a time I worked out what had happened. In my curiosity about the mechanical features of the thermometer, I had held it in front of the old Rochester coal-oil lamp we used to light the room, and the heat of the lamp had driven the mercury up in the tube. Dr. Fay was pleasant about it. Sick as he was he laughed at me.

"Nothing else could have been expected of you," he said. "You'd have postponed dying while you tried to find out how the machine worked."

Next day the hard snow was followed by a stiff northeaster. The *Argonaut* had been tied up alongside the dock at Atlantic Highlands, with a caretaker on board. Toward night he came galloping into the house.

"The *Argonaut* is pounding against the dock with every wave," he said. "I'm afraid she'll start a seam and sink. What will I do?"

There was only one thing to do. The *Argonaut* had to be taken from that dock into the safe anchorage of the Horseshoe, and I was the only man to do it. So I got into my clothes. I took the engineer along to run the engine and we cast off from the dock. It was a hard thrash through the gathering sea until midnight, and for the whole time I was at my old post, lashed fast outside the conning-tower, ice forming on me with every breaking wave. Once ashore I walked three miles before I could find a rig in which to ride home, but the next morning I had no sign of pneumonia—never felt better in my life. But I don't recommend the treatment.

Much the same thing happened when I was just a youngster. I had taken out a little schooner, the *Susan Daugherty*, for a short cruise, and a day or so out I began to run a fever. I did not want to cut the cruise short, so I laid some blankets down on the floor of the cabin, alongside the trunk for the center-board, and undertook to sleep it off. That night a storm blew up and I was called to the deck to handle her. We were drifting toward the shore.

"I'll have to furl that jib," I said.

I crawled out on the bowsprit, and every time we met a wave I went under neck and heels. But I got the jib tied down and then went back into the cabin and began to catch up on my sleep. When I awakened, the fever was gone and I had the appetite of all

appetites. Again, however, I would not suggest this treatment to the medical men. It might not work every time.

Our finances had been partly restored—thanks in part at least to the advertising which resulted from the *Argonaut's* triumph over Davy Jones—and I decided to begin work on the changes that had been determined on. The *Argonaut* was to be lengthened by twenty feet, and the sea-going superstructure added. I worked her round to Robbins dry-dock in Brooklyn and we got her out of the water and up on the pier. When we first tied up alongside the Robbins dock we were welcome as the first flowers, for the Robbins Company had little work in sight and not much on the dock. But then business began to come in as a result of the ending of the Spanish War. In one day seventeen United States transports came in for repairs. They got the attention, for the Government had the money. Now and then a workman came around to look at the *Argonaut*, hit her a lick or two with a hammer, and then went away again. W. R. Todd was then superintendent of the Robbins Ship-building Company. Later on he was to organize the W. R. Todd Company and become one of the country's foremost ship-builders. Bill was a great man and a driver, who knew every inch of his business, but he was inclined to be a bit heavy-handed at times. This is not a criticism. The man who can run a shipyard must be all man. I had been bothering him to get to work on my *Argonaut*, but my position was weak, for I had no money and I owed a lot for the

work that had been done. I was confident that the money would come in, but I did not know when or where it would come from. One day I bore down on Todd, determined to get some kind of action, but Bill beat me to it.

"Hi, Simon," he said. "I'm getting damned tired of seeing that *Argonaut* of yours hanging around here, taking up good room. If we got rid of it we could do some business. Anyhow, it's damn near time we had some money out of you."

"She'd have been out of here long ago if you had put some men at work on her. But you have got a lot of tramps in this yard. I've watched 'em. Give me some men who know their business and I'll get her off the dock in no time at all."

Those were fighting words, of course. Todd roared at me:

"You complain about the way we've treated you. My God Almighty, don't you know there's twenty-two thousand dollars worth of extras charged against her right now?"

"There isn't a nickel's worth of extras on her, Bill. Don't you ever read your contracts? Mine called for twenty-five dollars a day penalty if you did not finish the job on time, and no extras to be charged unless I gave the order in writing."

"Is that so?" Todd yelled. "Is—that—so?"

"You bet it's so. Haven't you even read the letters I have been writing the company, in which I complained of the manner in which this job was handled?"

"I'll talk no more with you," said Todd. "You go see the boss."

In the end I got to see Mr. Robbins himself. He was no longer very active, but he kept in close touch with his business. He heard me very pleasantly and at last said: "This is a matter for the lawyers, Simon. I'll see what mine says. You come in at four o'clock to-morrow and I'll tell you what I'll do."

At four o'clock the next day I was on hand. Robbins smiled at me.

"Tell me, Simon," he said, "who wrote that contract?"

"I did. Every word of it."

"That's what my lawyer said. He said no lawyer ever had a hand in it. He said, 'It's so plain and clear that any jury in the world would find for Lake. You'd better settle.'"

Robbins sent word to Todd to let me pick the men I wanted and to let me boss the job. That made it easy. The only trouble was that the good mechanics had been put on the government jobs and I had been given a bunch of bums. In two weeks we had the new *Argonaut* in the water and ran her around to Bridgeport, Connecticut, where I had lived at one time. We had a tremendous reception—bands, school-children marching and waving flags, flowers, speeches. I determined to please my friends by giving her a trial run.

We invited twenty-eight persons to go with us, and twenty-seven of them accepted. The banks of the river were lined with people. When I cast off I prom-

ised the crowd that we would return by two o'clock in the afternoon, but after we were submerged we simply lost track of the time. It was only possible to take two people at a time in the air-lock with me, and every one of the twenty-seven wanted to have that experience. At four o'clock we returned to the official pier and came to the surface. Bill Doyle, the editor of the *Bridgeport Standard*, was standing on one of the posts of the dock. When we got near the dock he shook his fist at me.

"You damned fool!" he yelled. "Do you know what you have done, you idiot? You had us all scared to death. We thought you were all dead!"

In the earlier type of *Argonaut* we drew air in through a hollow mast fifty feet long. While we were resting on the bottom, having a grand time sending our friends out to pick clams and oysters and beautiful iridescent jingle-shells from the bottom of the Sound this mast extended above the surface of the water, of course. John Fisher, one of the star singers for the phonograph company, entertained us with "Down Went McGinty" and other appropriate and tuneful songs, we cooked and served our guests a fish dinner, and had a bully time. Among our guests were the mayor of Bridgeport, the heads of the telephone and Locomobile companies, and various bankers, merchants, and professional men. There is no doubt that Bridgeport would have sustained a mighty loss if they had been drowned.

When we did not return on time the people along the shore got worried and sent out a tug to find out

what was going on. The men on the tug had no difficulty in finding our mast protruding from the water and rapped on it to get our attention and find out what was going on. But McGinty was going down uproariously, the chowder was being eaten, every one was talking, and between times my friends were being taken into the air-lock by one's and two's. No one heard the raps on the mast.

"They must be all dead," the tugmen reported.

The good folks of Bridgeport wired Merritt and Chapman of New York to hurry a wrecking barge to the scene.

"I'll not allow the newspapers to carry a line," declared Doyle, or some one else in authority. Or perhaps the journalistic chiefs got together in this agreement. "What we fear is too horrible. Nothing shall be printed until we know all."

But the news got around, as news has a way of doing, and when we finally approached the dock at four o'clock the streets were jammed with silent people, waiting for the news of the tragedy. Doyle apologized later for bawling me out, when he learned from the mayor and the other guests that if I had been at fault, at least the fault was shared by all the others. He had no support from my guests. They had had the time of their lives. Now and then I see some of those who are still alive and they are still pleased.

CHAPTER XIII

Success in Salvaging Sunken Cargoes

I HAD been licked in my encounters with the Navy, blown, you might say, right out of the water. I did not like this. I do not ever like to take a licking. But it seemed there was nothing I could do about it. I said to myself, "One of these days they'll want me, but I'll never go back to Washington until they send for me."

Then I went to work on what was, after all, my real job. I had never been much taken by the military possibilities of the submarine. It would be a magnificent weapon some day. Any one could see that. But I was not interested in drowning people and sinking ships. The thing I had always had in mind was the salvaging of cargoes from ships already sunk, and doing other commercial and scientific work. There must be enough jewels on the floor of the sea to hang a necklace on every good-looking neck in America. And there were plenty of heavy cargoes, too, that would be worth bringing to the surface. If high naval authority is well informed, the entire ship population of the Seven Seas is sunk once every twenty-five years. A ship can, under certain circumstances, almost last forever, but few of them do. I have a list of seven thousand vessels carrying valuable

cargo that have been sunk in comparatively recent times. If I had let the military men alone and stuck to the salvaging idea I would have made a great deal more money in the years to come. It is true that I might not have had so much fun.

The rebuilt *Argonaut* was practically fitted to the sound new business on which I proposed to embark. It was big enough to hold a crew large enough to do the work. It wheeled over the bottom as though it were a bicycle on its wheels with their foot-wide tires. Each wheel was three feet in diameter and under a modified arrangement could be housed in the keel when it was not lowered for travel in the water-bed. A "cushioning" bowsprit was also fitted, with a heavy wire running from its tip down to the keel. With this arrangement I could run over boulders or small wrecks. Remember that the *Argonaut* when submerged could be so controlled that its negative buoyancy was only a few pounds. It was actually possible to step out on the sea bottom, through the door in the diving compartment, and move the whole boat by the comparatively slight pressure of one hand. When we went automobiling on the bottom of the sea it could rise over any obstacle the bowsprit could top, and travel safely up the sides of declivities with angles of as much as forty-five degrees. No surface automobile could do as well.

I told my friends at Bridgeport that I proposed to search the sea bottom and they believed me. This was almost the first time, it seems to me, looking backward, that I had not been met by doubt, if not a

blunt denial, when I announced my plans. But the twenty-seven people who had been my guests during the four hours' submergence which had so frightened the people of Bridgeport had spread the story of their experiences. We had cooked a meal under water, played games, gathered sea-shells through the door which opened into the water, and had a very jolly time. They refused to believe that the *Argonaut* could not do anything I promised for her.

"There are plenty of sunken vessels hereabouts," the old sea captains told me.

"I can find them," I promised.

"If you can find one of 'em you've got a fortune."

One of the lost vessels belonged to the Thames Towboat Company and had been consigned to the Orford Copper Company in Brooklyn with a load of copper ore and copper matte from New London, Connecticut. Seven years previously she went down during a storm and the owners of the cargo had immediately sent out a wrecking tug in an effort to locate her. The wreckers failed, and then a former superintendent of the company, knowing the value of the ore and matte, fitted out a searching expedition of his own. After two years he gave it up.

"You'll never find her," the old sea captains said.

"My new wreck-finder will locate her inside of two days." It did, too, off Hammonasset Point. When the usual preliminaries had been gotten through we went to work to salvage the cargo. I sent samples of the ore and matte to various smelters, but the winning bid came from the original owners. They knew

the intrinsic value because the ore had been taken from their own mines. It made us a very pretty penny and confirmed me in the belief I had held so long that the salvaging of lost cargoes is a business worth the attention of any man.

Before bringing up a cargo it is necessary, of course, to find the wreck. My predecessors in the salvaging business had dragged the bottom in a more or less desultory fashion. The fact that two thoroughly competent wrecking outfits had hunted more or less continuously for three or four years in an effort to find the vessel with the cargo of ore and matte is evidence enough that something was wrong with their plan. My wreck-finder was simplicity itself. For that matter, most worth-while ideas are.

With my method we were able to search about twenty square miles of bottom each day, provided the bottom were free of obstructions other than wrecks. In a very little while we had located sixteen sunken vessels in Long Island Sound. There was not, so far as I know, even local tradition on the names and fates of some of them. One was led to reflect somewhat soberly on the life the sailor leads. The average land-keeping mechanic would be on his soap-box every Saturday night to complain of his hard fate, if he worked half as hard as the sailor does. The sailor is wet most of the time. He is turned out of his half-dead sleep in the middle of the night to help save his life and his vessel, and he finally drowns anonymously, no one knows where. Yet there is rarely any shortage of seafaring men.

No one had ever tried to salvage cargoes in a really businesslike way. Divers had been sent down to break into the strong-rooms of vessels in an effort to recover treasure, but salvaging of that kind is disproportionately expensive and rather dangerous. It is miserably easy to foul a diver's lines, and the necessity of deflating the diver—that is a heartless way to put it, perhaps, but that is precisely what happens when the air-pressure is lifted—is a tedious one. If it is not managed properly the diver will be attacked by the painful “bends” and perhaps die. I had realized that my enterprise would only succeed if we had new methods.

I built a submersible cargo-carrier which proved to be a complete success. It was shaped like the pressure-resisting portion of the *Argonaut*, cylindrical in form and air-tight. In practice it was anchored near a wreck, and by means of air- and water-valves the air was permitted to escape and water to enter. When on the bottom the diver removed the hatch cover, the boat was loaded, the compressed air was turned on and the water forced out, and the boat rose to the surface.

That operation was easy enough if the conditions were right. Some of the sunken boats were loaded with coal, which is an easy cargo to handle. We merely ran the muzzle of a big suction pump into the hold, drew the coal into the submersible freight boat, and then walked away with her. The coal in one of the cargoes we recovered was of a lovely iridescent purple and blue, and we found that it

must have come from the famous old Peacock mine, which had not been worked for seventy years or more. The cost of recovering coal was only about fifty cents a ton, and it was salable for several dollars a ton as rapidly as we could get it on the dock, for coal is not injured by water. Our deep-sea equipment permitted the recovery of three hundred tons an hour at two hundred-foot depth.

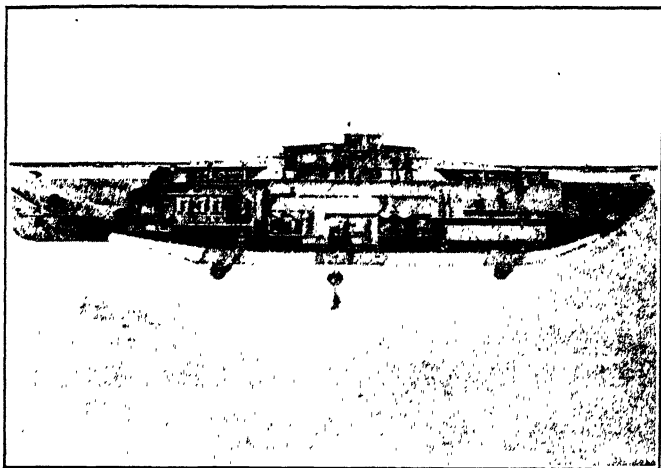
Not all cargoes could be handled in this easy and profitable fashion. We found one with a deck cargo of scrap-iron, and hides and flour in the hold. The vessel had been sunken at least thirty-six years, for we communicated with the postmaster of the town in which the hides had been made, and found the tannery had been out of business fully that long. The exterior of the scrap-iron was rusted into a solid shell but the inside was all right and we broke it up and got it out. We sold both the hides and the iron at a profit, and my recollection is that the flour in the center of the barrels was dry in spite of its long submersion. It was a fine, adventurous business in which we were engaged, with a distinct gambling flavor. We worked hard to get our lines on three vessels, only to discover that two were loaded with stones and the third with oyster shells. They were not worth bothering with.

Heavy cargoes, especially of materials that had been welded into solid masses by time and water, of course could not be pumped out. For jobs of this kind I later employed a different rig. The heavier machinery was placed on board a surface vessel and only the

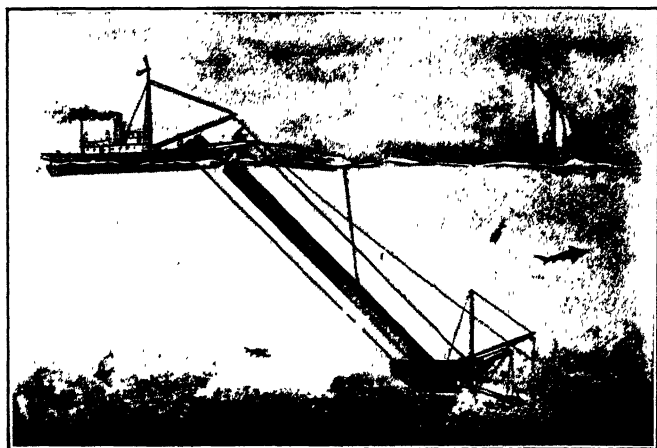
mechanical devices needed for the diver and his operations were in the auxiliary submarines. For other operations a tube was employed, large enough for a man to descend comfortably on a ladder, and with a well-lighted observation chamber at the lower end from which he could walk into the water just as though he were stepping out of the water-lock on the *Argonaut*.

This tube had one very great advantage over anything that had been tried before. A diver was not continually yanked and mauled by the currents of the sea. The movement of the water below the surface is about the same as on the surface. That is to say, a ten-foot wave, from hollow to crest, will stir the water for approximately ten feet below its greatest depth. The surface vessel to which the diver is attached is continually rising and falling, and sometimes is under the constant necessity of maintaining its position through the use of power. It is fatally easy for the long lines trailing behind a diver to loop around some projection of a wreck, because of this intermittent pull from the surface.

My submersible ship for a diver's operations, however, lies quietly at rest on the bottom. In the lesser depths the diver does not need to use the tube but operates as I have previously described. When it is necessary to attach the tube to a surface ship, as I have done when the use of the submersible mother-ship did not seem advisable, a ball-and-socket toggle on the tube took up most of the play due to the movement of the surface.



CROSS-SECTION VIEW OF A MINE-PLANTING SUBMARINE



SKETCH OF THE LAKE SALVAGING TUBE

With this apparatus, Simon Lake has experimented successfully in retrieving treasure from the ocean floor.

Early in my salvage operations the fact was brought home to me that playing around sunken wrecks may be far more dangerous than cruising over sea bottoms looking for enemy cables to cut. We were lying alongside a rather good-sized wreck.

"She has a big overhang," the diver reported.

"We'll keep clear of her."

Easier said than done. The diver was in and out, doing his work, and the *Argonaut* shifted her position. There might have been a bottom current. Sometimes there is. Perhaps the movement of the man inside started her, for when a submersible is very nicely balanced under water, it sometimes happens that the change of balance due to the change in weight positions will give the boat a slight impetus in one direction or another. When we were ready to ascend we closed the water-gate and blew out the ballast tanks, but the *Argonaut* did not rise.

"Better go out and see what's the matter."

We let the water in again to hold her stable, and the diver investigated. He reported that the *Argonaut's* nose was firmly snuggled under the wreck's overhang and that he could not move her.

"What's worse," he said, "there's so much loose wreckage floating around down there that if you start the propellers you might snap them off."

There we were, stuck hard and fast on the bottom. We could not go on blowing out our ballast tanks, for we had only a limited amount of air. The one thing we could do was to sit there and wait for the tide to change, and try not to tell each other ghost-

stories. Eventually the tide changed, the *Argonaut* wriggled her nose out of the clutch of the overhang, and we were free. But as soon as we got on the deck of the surface vessel two of my men told me they had given up a subaqueous life for good. They were very nice and polite about it but they were firm. They were not like another man, who was detained at another time under water by one of the annoying little incidents that used to happen in those early days.

"When I get out of here," he said, "I'm going to tell a funny story to Simon Lake."

At last the boat was freed and came to the surface.

"What's your funny story?" asked the mate.

"This is it," he said, as he got into his coat and took his dinner bucket. "You tell Simon Lake to go to hell. I'll never set foot on that submarine again."

Some years later I was to use my apparatus in efforts to recover historic sunken treasure, but in the meantime some exciting events were to transpire. My salvaging operations on heavy cargo proved to be genuinely profitable. They carried me through the year 1900 with a nice profit in the bank, the field was widening out before our eyes, and it seemed to me that the Lake family could hardly avoid having one millionaire in it. Our submarine explorations attracted so much attention that years later I received a most remarkable message. The World War had been fought and won by the Allies with the aid of the United States, and we had so far returned to a normal state of mind that we began seriously to contemplate the salvaging of the *Lusitania's*

cargo. One day I got a letter, written on excellent stationery, by a woman who was evidently a person of culture:

Dear Mr. Lake [she wrote], I see by the newspapers that you are about to undertake the salvaging of the *Lusitania's* cargo. If this is the truth, I wish to ask you to do me a very great favor. Do you mind recovering my \$100,000 diamond necklace? I value it not only for its intrinsic value, but because my husband gave it to me. Finding it will be a simple matter. It is under the pillow in my bed in Stateroom 357 Deck B.

The funny thing is that it might be found right there—one never can tell—though I doubt if the pillow has lasted.

CHAPTER XIV

Invention of the Periscope

A BLIND submarine would no more frighten an enemy than a blind hawk would worry a henyard. Every one of us at work on submarine designing knew that quite well, but not one of us had ever succeeded in giving eyes to our monsters once they were submerged. It is true that we could cruise on the surface with the conning-tower exposed, but that would be only a target in wartime. If the presence of a submarine were suspected an enemy vessel need only wait around. Sooner or later curiosity or one of the various needs of operation would compel her to "breach" like a whale. What would follow would in a way resemble trap-shooting. If the gunner were quick enough he could hit the clay pigeon.

"I want to get my seeing eye above surface in something so small that it will not attract attention," I told my associates. "Something as nearly invisible as possible."

In fact, I was describing the periscope of the future, but as yet I had no idea how that mechanism could be made to function, nor even what it would be. That is the way inventions are born. One has an idea, and then one fumbles around with it for a long

time. Meanwhile we had tried various experiments. John P. Holland had equipped his *Plunger* type with what he called a "camera lucida," which did not differ so widely from the cameras obscura which used to be side-show attractions at the country fairs. The faint reflection of the landscape might be seen in shadow on a white background, but no indication of direction or distance was given. It was not a practical device.

In my hunting about for an "eye" I remember that one of my schemes was to send a man to the surface in a buoy, which could support him there while he made his observations through glass windows set in its slides, but I do not believe we even made a model of this device. Nor did we build the "observation cage," a water-tight, barrel-shaped container in which a man could be lifted above the water by means of a hinged mast. The mast, when not in use, would lie on the deck. As soon as I had reduced these plans to the blue-print stage I realized their absurdity. Then I got the idea which was the progenitor of every periscope in use to-day. Without the periscope the submarine navy would be helpless.

I say I got the idea, but that was all. I talked with people who knew something about optics, and after they discovered what it was I wanted to do they joined the very considerable body of good citizens who thought that Simon Lake was crazy. Without exception they told me that what I was trying to do could not be done. There seems no doubt that they

won the argument on points. But I insisted that it must be done.

What I wanted to do was to assemble some lenses and prisms at the outer end of a tube and direct a view of the surrounding scene down the tube to an eyepiece or a mirror or perhaps only a white cloth in the conning-tower. I knew very definitely what I wanted to do and I had not the remotest idea how to do it. I bought all the books I could find on optics and studied them, and ultimately got a little clearer vision of my original idea. Then I saw a job lot of lenses in a show window and bought them all, "as is." I do not now remember how many lenses I got, but it was plenty, of all sizes and descriptions. When I had nothing else to do I would assemble various combinations of lenses and prisms on a drawing-board and stick it out the window of the Bridgeport office.

Nothing ever happened.

I could not see anything through my combinations, no matter how I changed them. I was going at it blind, for I knew almost nothing about the laws of optics, and when by way of amusement I worked out the mathematical sum of the possible changes I was horrified. Then one day I set up a combination I had never tried before and thrust it out of the window on the drawing-board—

Miracle of miracles, I could see!

It was a dull, heavy day, and I can still remember seeing in the little reflecting mirror the picture of Bridgeport's street and the tree-shaded pavements

and people walking and wagons rolling toward the harbor. I had succeeded in doing what every one had said could not be done. A submarine need no longer cower blindly under the water when in enemy neighborhood, but could go about its dangerous business like a real sea-serpent. I was tremendously excited. Then the door opened from the inner office and one of the draftsmen called to me to pass on some problem that had arisen. I went into the other room, leaving the drawing-board with the prisms and lenses sticking out of the window over Bridgeport's street.

While I was in the drafting-room rain began to fall.

That may seem a matter of small consequence, but as a matter of fact a five-minute shower delayed the creation of the periscope-that-was-to-be for weeks. The office-boy was suddenly overcome by efficiency, and seeing the board with the lenses being wetted by the rain he pulled it in. Of course, the lenses were all jumbled up. I found that I had not the slightest idea in what order they had been arranged, and I could not rediscover the combination through which I had been able to see. I spent days in shuffling and reshuffling the parts of my puzzle and nothing happened. I could not recapture that first brilliant view of a crowded Bridgeport street which for a brief part of a minute had been the most satisfying sight of my whole life.

About that time I learned that a member of the faculty of Johns Hopkins University was considered the best man on optics in the country. I packed my

grip and started for Baltimore to tell my troubles to the professor. He listened to me in patience and then shook his head.

"Sorry to disappoint you. You are trying to do the impossible."

"But I've done it."

The professor sat up at that. "That puts a different face on it. Tell me just what you did and what you got."

I was able to give him the focal lengths of the lenses and other bits of information.

"Come back to-morrow. I may be able to tell you more."

He worked on it that night and the next day was able to describe to me the optical principle on which the periscope of to-day is based. After some experimenting I was able to secure practically normal vision through a tube of considerable length. Later I learned that Sir Howard Grubb of England was experimenting with a similar device at about the same time.

At first the heads of other periscopes were rigid, so that in order to get a view of the entire horizon it was necessary to swing the ship. But this was not satisfactory. I wanted to see everything the moment the head of my sighting instrument protruded above the water. My hope was to get the same comprehensive view that one might get if, for example, he were looking down on the scene through a hole in the bottom of the basket of a balloon. I wanted not only to see everything in its proper proportions but

to measure the distance an enemy ship might be from us and the speed at which it was traveling. I called this instrument the "omniscopes," meaning "to see everything," and built several of the type for our first Russian boats. But they were not successful. I was able to see the entire horizon at a glance, but the distances did not seem normal. Then one day I discovered how and where I was wrong.

I was walking down a street in Braunschweig in Germany, returning to my lodgings after a visit to the shops of the Voightlander Optical Company, where our instruments were being made. It was as though a curtain had been lifted for me, and I stopped short in the street.

"Simon," I said to myself, "you're a fool. You can't outdo nature." Man is not equipped with a fly's eyes. His view is extremely limited, for he can only see clearly about two and a half degrees of the three hundred and sixty degrees of the horizon. If you doubt this, look steadily at a fixed point—for example, a finger held about one foot from your eyes—and then hold a printed card in the other hand about three inches to the right or left of the finger. You will find that you cannot read the printed matter without moving your eyeballs to bring the letters in focus. The objective lens in the head of the periscope simply produces the image and transmits it through a right-angled prism down a tube. At the foot of the tube the first image is viewed by another long-focus lens and this is turned right side up and magnified by the lens in the eyepiece. This may sound extremely

complicated, but it is entirely simple in action. Because of the loss of light it is necessary to reduce the field of vision to about forty-five degrees to make distant objects seem normal.

While the periscopes I installed in our early boats were capable of being rotated or elevated, some other builders used fixed periscopes. The first serious accident coupled with loss of life in the submarine division of the British Navy might be charged against the periscope. The *A-1* was running in the English Channel with her periscope exposed. The lookout on the *A-1* did not see a fast steamer coming up on her and the steamer did not see the periscope. The *A-1* was lost with her entire crew.

Our company built the *U-1* and the *U-2* for the Austrian Government, both with the rotating type of periscope. Austria also purchased another type of submarine, which was equipped with the fixed periscope. One day this boat took her station alongside the pier and the commander emerged through the conning-tower hatch. I've no doubt he said, "*Donnerwetter! Pig-dog! Dummkopf! . . .*" and many other expletives that may have occurred to him, for a white something was fluttering from her conning-tower. While the boat had been running submerged, except for the head of the periscope, some humorous officers had run alongside in a small launch and tied their visiting-cards to the tube. In those days the machinery was so noisy that those inside could not possibly have heard anything from the outside, and the slight bump when the launch made contact with

the U-boat must necessarily have passed unnoticed.

Incidents of this kind soon brought about a change in the periscope equipment. Nowadays it is customary to use two periscopes, one being used to con the ship's course and the other to keep an eye on the water in all directions. In this way the danger of surface collisions is lessened, and a competent navigating officer will have so definite a notion of the number and whereabouts of the ships in the vicinity that little will be risked by again submerging. When navigating officers were only able to see three or four degrees of the horizon through the first periscopes a real danger was encountered in coming up after a dive.

Once, I remember, we ran across the bows of a Bridgeport excursion steamer, and knew nothing of it until the next day. On another occasion we came up under a pleasure launch, and the launch lodged against our conning-tower. We felt the bump, of course, and when the steersman peered out through the portholes he looked into a pretty little boat filled with screaming ladies. He saw them rather than heard them, and had a good story to tell of their startled eyes and their white teeth, but their voices did not penetrate the conning-tower hatch, already clamorous with machinery noises. I reversed her engines and submerged again and the launch with the load of ladies was left floating and unharmed. Another time we banged up against the bottom of a big barge but did no damage except to snap off our flagstaff. Nowadays the underwater hearing devices

have been so nearly perfected that a submarine can locate any vessel moving in its vicinity, so that the danger we once accepted as a trade risk has been practically eliminated.

Luck was with me all through the incident of the discovery of the periscope. It was luck that gave me that first combination of prisms and lenses. The next good fortune was that I found an old German who knew more about the practical end of the business of optics than all the rest of America. He was the only man on this side of the water who could make crown-glass. Without this there can be no prisms, and he had introduced prisms to this country although, poor devil, he made no profit out of it. We planned together our first rough but workable periscope before turning that end of the business over to the Government's scientists. When we began to build submarines in Europe the periscopes and range-finding devices were made in Italy and Germany.

There is this grave defect about a periscope. It is next to useless at night, and yet submarine commanders always operate under cover of darkness when this is possible. I have invented a night-seeing device which I believe will be practical, but it has not yet been given a thorough test. To describe it as simply as possible, it is a dome of silvered glass which in use barely projects above the surface of the water. The observer is able to see in all directions and the dome itself is practically invisible at a distance of one hundred yards.

The *Argonaut* was no longer considered a freak at

Bridgeport. She was a working lady, scavenging about on the floor of the Sound, and making a very good business of it. The newspapers had stopped paying much attention to her, for she was no longer news, but the Navy watched with a good deal of interest. John P. Holland had built the *Plunger* under the appropriation granted by Congress in 1893, but the *Plunger* obstinately insisted on living up to her name. She would plunge magnificently, but she could not be controlled, and was finally abandoned in 1900 without having made a single submerged run. Mr. Holland built in her place a smaller boat, the *Holland*, which was accepted by the Navy, and in June, 1900, Congress authorized the Navy to contract for five more boats of the *Holland* type, at a cost of \$170,000 each.

Congress did the picking and buying in those days and the officers of the Navy, who really knew what it was all about and who had the job of working and fighting the boats that Congress bought, were hardly listened to. The Navy did not like the *Holland* boat at all, even if Congress did, and some of its officers quietly urged the claims of Simon Lake's hard-working little *Argonaut*. After all, the *Argonaut* was submerging every day, as a part of her day-to-day business, and acting as though it were a commonplace. No other submarine had ever remotely approached that record. Every submarine of which I had knowledge at that time was submerged as an adventure and her return to the surface was regarded as an escape. One day I got a telegram from Eugene Hale, of Maine,

at that time chairman of the Senate's Naval Affairs Committee: "Come over to Washington and see me."

Sometimes nowadays I wonder at myself. There I was, having fought through some hard years, safely established in the profitable and conservative business of salvaging, with good prospects ahead and no competition. Nothing could have been better, and the taste was all the sweeter to me because of the bitterness of the very recent past. There had been one time when I was so hard up that for three days we could not work because I was unable to pay a Bridgeport merchant's bill for seventeen dollars. The only way I could get the money was to borrow it, for we dared not move the *Argonaut* from her buoy, and only those who have borrowed money under such conditions know the reluctance with which dollars leave their owners' warm pockets. But we had grown triumphantly solvent, we had credit everywhere, a nice balance in the bank, and not a debt in the world.

I knew precisely what I was offered by that telegram from Hale. I would get a chance to lose my money, wreck my business, dissolve my credit, waste my time, be bedeviled by politicians, and get the run-around and the high-hat from naval officers who did not know anything about me or my *Argonaut* and did not care. It was common knowledge that there was a submarine lobby in Washington which was using indecent methods, and I knew that because I was a submarine man there was danger that I would be tarred with that stick.

Yet I went to Washington.

The truth is, of course, I wanted to build a Lake submarine for the Navy. Every inventor sees his invention and the rest of the world through his own spectacles. I was as sure that my submarine was better than any other submarine as I was that the President lived in the White House, and I felt that if the American Navy were possessed of a fleet of Lake submarines my country would be safe from any attack by sea. To be candid about it, too, I had been pretty badly treated by those who should have treated me well. I had been compelled to meet opposition which used unfair weapons, and I was angry. When I saw Hale I found him well informed and sympathetic.

"Go over and see Rear-Admiral Melville," he said. "He knows what is going on."

Melville was a fine old seaman. He had long white hair and a kindly face and the most honest eyes I ever looked into, and he swore like the very devil. It was shocking to hear him, not because of his profanity but because he looked so much like a saint.

"A lot of Goddamned treasury-robbers are trying to shove boats down the Navy's neck," he bellowed. "Our hands are tied. I cross the street when I see one of the Goddamned thieves coming my way."

Hale felt the same way and so did many other honest men in both Congress and the Navy Department, but there was not much that could be done about it. Congress did the buying and the insiders knew how to slick their little jobs through the con-

gressional committees and how to set up interference against the outsiders. Melville swore like a buck private in Flanders.

"We'll take a look at your damned boat, anyhow," he said. "By God, they can't keep us from doing that."

The Board of Construction of the United States Navy then consisted of Rear-Admirals Melville, O'Neil, Bradford, Francis T. Bowles, and Captain Sigsbee. I found they knew pretty well what I had been doing.

"Draw up some plans," growled Melville. "Let's see what you've got. Maybe we can circumvent those damned treasury-robbers."

During the year 1900 I prepared plans for three types of submersibles. One was for a small boat which could be carried on the deck of a war-ship, the second for a coast-defense submersible not designed for use on the high seas, and the third for the type now known as the fleet submarine. I called this larger boat a submarine cruiser. The five members of the Board liked my plans and said frankly that no other had ever been proposed either at home or abroad that was in the same class.

"But our hands are tied. We have no money. Congress has specified that the *Holland*-type boat be built and we have no authority to do anything on our own. If you have friends who are willing to risk their money and will build a boat for us of the coast-defense type we will at least promise a fair trial. If it proves to be as good as we think it will be we will

recommend its purchase. We believe that Congress will order its purchase on that recommendation."

By this time the Navy wanted submarines. The value of the new arm was no longer debatable. Certain members of Congress were very active in urging that the Navy be given submarines. There was talk of building a fleet of fifty, and if I had been a cautious man I would have foreseen that this would mean plenty of canoodling around the congressional halls. I did not foresee very well, perhaps, but it soon became impossible to avoid seeing. In 1900 the methods of the lobby were neither subtle nor surreptitious and lobbyists were about as clandestine as bull elephants.

A yacht named *Josephine* lay at anchor in the Potomac, and if reports could be trusted *Josephine* was a pretty loose lady. From the shore one could see lovely creatures floating about the deck, being served by Negro servants in white uniforms; terrapin and champagne and Congressmen seemed to be on the daily bill-of-fare. The ladies who made a habit of visiting the *Josephine* lived at the best hotels in Washington and some were said to move in the highest social circles. Votes for the projects favored by Rear-Admiral Melville's "treasury-robbers" were secured by a combination of seduction, good fellowship, open purchase, and blackmail. Wives of many a prairie Congressman cried their eyes out while their husbands whooped it up on the *Josephine*.

I say that I should have known better. I should have known when I was well off and had sense enough

to stick to my knitting. But I knew that Hale and the members of the Board were honest men and they wanted to buy an honest boat for the Navy. I told Melville I did not know where I could get the money to build a boat. I had no money of my own. I could not at the moment think of any friend who had any to spare. But I would try.

"Remember that the Navy hasn't any money and can't get any and that the lobby is running Congress," Melville would growl. "But for God's sake go ahead and build us a boat."

CHAPTER XV

Big Trouble Really Begins for the Lake Company

REAR-ADMIRAL MELVILLE shouted good-by to me in his best quarter-deck style when I left Washington for Bridgeport.

"Mind you, we want a boat that will Do Something, Damn It! The boats they are trying to make us take are no better than the pigeons that fly in the air."

I began to learn the true meaning of trouble. When I tried to get money in the market I got nowhere. Bankers did not want any part or parcel of what I offered. The Holland patents had been sold to the Electric Boat Company, and the Holland boats had been improved, beyond any question. Isaac L. Rice of New York was the president of the Electric Boat Company, and he was a pushing, ruthless, hard-finished millionaire. New Yorkers will remember him as the builder of the Noiseless House on Riverside Drive, which was an evidence of his originality, at least. In those days no one seemed to worry about noise.

Rice was doing his best to sell his boats to the Navy, via Congress. He was a business man and could see farther ahead than I could. Money has never

seemed important to me, except when I haven't got it. It has helped me to put through things in which I have been interested, and it has given me good food and nice places in which to live, but the accumulation of money has never been my objective. Rice could see that if the Navy could be committed to a definite type of boat the builders would be certain of what would amount to a monopoly of a profitable business, provided, of course, that the boat was satisfactory. He was building with government money on a contract and he was a smart, a *very* smart business man. I was asked to build with my own money and run a risk of not selling. The only possible backers to whom I could appeal were the stockholders in the company that had built the *Argonaut*. They might get their money back if they put in more. I formed the Lake Torpedo Boat Company and asked them to come in.

"I know we have the best boat" was about all I could say.

They did come in, and I built the *Protector*, a small boat designed for coast defense and only sixty-five feet long, on the city dock back of the gas-house on the Pequonniac River in Bridgeport. Nothing happened until I had gotten my money and building operations were well under way. Then a man calling himself Hall came to see me and talked vaguely about investing some money.

"But I don't know much about submarines," he said. "Tell you what. I have a friend over in Brooklyn I'd like to have take a look at this thing."

"Bring him over."

The friend was a sharp-faced, hard-boiled man who asked scores of questions and had the answers taken down by a stenographer. That meant nothing to me, except that I liked his businesslike methods. After a few days he came back.

"I represent some business men who would like to buy your interest in this company." He was as hard and sharp as a knife. "I am not allowed to tell their names."

I had control of the company and I did not propose to sell it. My stockholders had put their money in solely because I asked them to do so. My caller said nothing about buying their stock. A few days later one of my directors came to me.

"You wouldn't make a price for your stock the other day," he said. "Simon, you're dead wrong. These people have been talking to me and I know you can get \$300,000 spot cash for your stock. Don't you be a damn fool, Simon. You sell."

"No sale."

My director was almost furiously interested in my welfare. He said that I was an idiot, and that if I did not sell he was through with me. He stomped through the yard swearing.

"You've got a chance to make a good bunch of money, you infernal fool, and you turn it down—I don't want to have anything more to do with you. If you don't sell they'll drive you out of business."

"Let 'em drive."

Melville called me to Washington to appear before

the Naval Affairs Committee of the House. The Navy wanted Congress to give it power to buy the boats it wanted and Congress was stubbornly holding onto its authority. I had to hang around Washington for several weeks before I got a hearing, but they were not wasted weeks. Uncle Joe Cannon and Oscar Underwood sat at my table at the hotel, and I almost forgot to eat in my interest in what they had to say. At last I was called to the witness-stand and put through a searching examination.

"Some of the questions you are asking cannot be answered in the short time available. If you will let me come back to-morrow I'll have the plans and specifications."

I was dreadfully worried about it. I was afraid that my failure as a witness might have cost the Lake Torpedo Boat Company the contract we were all after. It was not that I did not know the answers but that I had not been able to get them over clearly to the Congressmen, especially as they were firing new questions at me all the time. I thought to myself: "Congressman Lessler asked me more questions than any other man on the committee. I will go around and see him and inform him on all these points."

I was as innocent of evil intent as an Easter rabbit, and I let myself in for the greatest humiliation I have ever suffered. I still shrink when I think of it. Those were the days of the goings-on on board the yacht *Josephine*, and now and then the papers hinted about the beautiful blonde and the Senator's curling whiskers and the bottles of bourbon on the tables

and some of the Congressmen who did not go to the *Josephine* were getting very much irritated. So, also, were some of the Congressmen who did go to the *Josephine*.

Congressman Lessler lived at the Hotel Bellevue, not far from the White House. It was an old-fashioned place, with a wide stairway leading up from the small lobby and on one side a plush-stuffed, dim, and airless room labeled, "Ladies' Waiting Room."

The clerk asked me to go into this room and wait while the Negro bellboy found Congressman Lessler with my card. After a while Lessler came down the wide stairway with the effect of a big moment on the Fourth of July. In those days Congressmen dressed their parts, with wide black hats and embroidered vests and striped pants, and Lessler was a big man who could show off his sartorial investiture to good effect. Three or four steps from the bottom he paused, put his right hand on his left breast, pushed his hat back so that light could shine on his fine face, and asked in tones of thunder:

"Where—are—you—Mis—ter—Lake?"

I came meekly out of the Ladies' Waiting Room, my papers under my arm, feeling a good deal like a caterpillar on a garden path. The Congressman looked down at me from his stance on the stairway. The men sitting around the lobby watched me. Mr. Lessler asked in a voice of doom:

"Mis-ter Lake, what can I do for you?"

"I thought I'd bring my drawings around to show

you. I thought you would understand them better. If we could go somewhere—”

“Mr. Lake,” said Mr. Lessler, in a voice that rang like a French horn, “I want you to understand something about me. Mr. Lake, sir, I am trying to do my duty honestly. If the Navy Department recommends that we buy *your* boat, Mr. Lake, I shall vote for it. But I want you to understand this, Mr. Lake. You can’t bribe me and you can’t get me drunk, and by God, Mr. Lake, you can’t fool me with women.”

It was one of the most successful single acts ever put on. I have softened Mr. Lessler’s words in deference to the rules of good taste and also because no printed word could convey the sonorous majesty, the cold purity, the reverberating defiance of Mr. Lessler’s pronouncement. I sneaked out of the Bellevue with my papers under my arm. There is a better word than “sneaked.” It is “snuck.” I snuck out. That was the last time I ever tried to perform as a salesman. From that moment people came to me to buy and I never went to them. A few days later, by the way, Lessler charged that Lemuel Eli Quigg of New York had offered him \$5,000 for his vote to give the submarine building contract to the Electric Boat Company. It was a first-page sensation for days but nothing much ever came of it.

I did not get the contract I was after, but one day I had a call from Hiram Stevens Maxim, who was at that time a partner in Vickers’ Sons & Maxim, the great British armaments firm. Maxim and I talked the same language of tools and calipers and we got



TWO FAMOUS INVENTORS
Hiram Percy Maxim and Simon Lake.

along bully. A few days later he came to see me again and we talked submarines. I had no secrets to hide and he was greatly interested. England had been dabbling at submarine-building but with no great conviction, although Maxim made it clear he thought there would ultimately be a change in policy. After he returned to London a man who said he represented Vickers' Sons & Maxim called on me.

"We would like to have you name a price for your holdings in the Lake Torpedo Boat Company."

"Sorry. No price. I'm going to build a boat for the Navy Department and I won't sell."

"You're a young man," my caller remarked, benevolently. "You have your way to make in the world. Of course you have a price. Anything I have is for sale if I get my price."

"I wouldn't take less than a million dollars"—thinking I would scare him off. He didn't scare.

"Will you take a million?"

"No."

"I can't understand it."

Now things began to happen by cyclones. The boat was being built at Bridgeport while I was daddling away in Washington, waiting for the committee to call me. One day I got a wire: "The Electric Boat Company has attached everything. They have men in possession at the dock and they have seized all our papers."

I got back to Bridgeport about midnight, half sick with worry. I found one deputy sheriff loafing on the unfinished boat and another asleep on a drawing-

board in the office. Up to this time I had not known what it was all about. Now I discovered that I had been sued for half a million dollars on a charge of libel, the Electric Boat Company being the complainant.

Some days previously I had prepared a letter to send out to my stockholders. We needed more money for construction purposes and I was appealing to them to stand for another assessment. In my effort to assure them of ultimate success I used a phrase something like this: "I have the authority of high officers of the Navy for the statement that the Lake boat is far superior to any other."

I did not state the names of the officers concerned, but any one familiar with the situation could have guessed at them. Mr. Lebbeus B. Miller was then treasurer of the Lake Torpedo Boat Company and he objected to the letter when I read it at a directors' meeting.

"I wouldn't send that letter out, Simon," said he. "It isn't wise."

We did not send it out, but some spy turned a copy of it over to the Electric Boat Company, and they sued us. Under the laws of Connecticut an attachment may be secured before a suit is filed or a judgment declared. Samuel Fessenden was the attorney for the Electric Boat Company, and promptly tied our property up hard and fast. Judge Foster told me there was but one way in which I could get the company property released and go on building the boat. That was to put up a bond of \$1,500,000, as required by law.

"I'm done. I'm through. I cannot get such a bond."

"Maybe you can. Let's go over and see Miller."

Lebbeus Miller was one of the most remarkable men I have ever known. He was Isaac Singer's confidential adviser right up to the day of Singer's death, and much of the success of the company was due to him. One day two young mechanics employed in the Singer plant came to him.

"We have an idea for a water-tube boiler."

"Let's see it." He examined it, liked it, and told them to go ahead with it. Inventors are apt to have troubles when they take their ideas to moneyed men, but Miller protected the two youngsters. They got a full half-interest in the Babcock and Wilcox Company, which is to-day one of the great industrial institutions of the country, while Miller and the other Singer Company officials who financed it took a smaller share.

I did not know Mr. Miller very well at that time, and what slight acquaintance I had was probably due to the fact that I had employed his son as my attorney in certain patent matters. I am sure that he did not have much stock in the Lake Company—a few thousand dollars, perhaps, but no more. I had no idea that he was a wealthy man. Judge Foster and I walked over to the Singer offices and told our story to Miller.

"Oh," he said, mildly. "Oh. So they're trying to put us out of business."

He turned to his safe, took out several bundles of important-looking papers, and stuck them in his coat pocket.

"Come on over and we'll see the bonding company."

Foster told the story while Mr. Miller and I sat and watched the eyes of the president of the bonding company. The president said he thought he might be able to get the bond reduced to \$750,000, but he was not sure. Meanwhile Mr. Miller was willing to offer security to protect the company.

"That is not necessary," said the president. "Your word alone is all that we ask."

"I'd rather put up the securities," said Mr. Miller. He unwrapped the stocks and bonds he took from his pocket. "You might as well keep them. Just give me a receipt."

That bond was up for ten years before we could get it released, and in all that time we could not get into court for a trial. But we were not worried any more, for Mr. Miller's action gave us the semblance of financial stability we may have lacked before, and no one cared to attack us recklessly.

The new boat worked beautifully after a few corrections had been made in her batteries. Young Lieutenant John Halligan had been sent by the Navy Department to watch the *Protector's* builders' trials and breaking-in runs, and he warmly approved her in his report. This, of course, had no bearing on the final purchase or rejection of the boat, any more than the laudatory article he wrote for the Naval Institute, the magazine of the service.

Halligan had recently married a lovely girl. One day he came to me. "Good-by, Lake. I've just been

ordered out of the country." My recollection is that he was sent to the Argentine. Halligan was too well disciplined to say that the opposition's lobby had prevailed on the Department to send away one of our best friends, but others said it for him. The assignment to the Argentine was cancelled. The *Protector* was sent to Newport, where we hoped a Naval Board would watch her trials. Halligan was also ordered to Newport. Mrs. Halligan was running from place to place (as navy wives do, poor girls) to meet her husband for brief visits. He was tremendously pleased that he would be with her at Newport.

"Poor child," he said. "I've hardly had a chance to bow to her during the last few months."

On the dock at Newport he was met by a peremptory order directing him to leave at once for Cuba. He did not even have time to go on shore and say good-bye to Mrs. Halligan. Years later I offered Halligan \$10,000 a year to come with our company, but he would not:

"I'm in the Navy," he said. "Some day I'll be an admiral." He was so conscientious that when he was with us on the *Protector* during the trial runs he insisted on paying for his meals. I'll venture to say that under Rear Admiral John Halligan, who died in 1934, no young officer was ever given the heartbreaking treatment he had received at the instigation of the lobby—not if he knew it. He was an honest fighting man.

CHAPTER XVI

Russia Buys the Lake Submarines

I'LL admit it was bad weather when the Naval Board reached Newport to give the *Protector* her trial run. The bay was full of ice and the wind was high and sailors who were used to sailing on the sea might well be forgiven for refusing to cruise under it. The steamer on which the Board sailed for Newport got stuck in the ice.

Maybe it was a case of bad manners on our part. We did not so intend it. We only wanted to show the Board that the *Protector* could take it. We ran her out in the bay and in circles about the stuck-fast steamer and broke through some of the lighter ice. Then we tied alongside the dock, chesty as pigeons and sure that we had won our case in advance. The members of the Board glanced at us out of wind-swollen eyes when they disembarked. They merely said, "We will not undertake a trial in this kind of weather. We have decided to postpone it until spring."

Our hearts dropped. I mean they literally dropped. We had been so cocksure of winning approval. We were no longer unsophisticated, after our experiences in Washington, and we knew that a final desperate effort was being made to push through an appropria-

tion for the exclusive building of the Holland boat. If the *Protector* had been given a trial under the worst conditions that could be imagined and had passed triumphantly, our cause would have been forwarded and that of the opposition retarded, for up to this time the Holland boat had never made a satisfactory showing.

There was a nigger in the woodpile. We were all right in deep water, but it seemed we didn't have a chance in Washington. We had found out how things were done at the capital, and we would not do them that way; that is all that can be said about that.

Then we had what seemed to be a streak of fat along with our streaks of lean. I went to William Howard Taft, then Secretary of War, and a man impatient of anything that savored of skulduggery. The Army is charged with the duty of defending the coast, and it did not take anything of an argument to convince Taft that defense by submarine was at least worth looking into. He named a Board of three officers to make an investigation. They were Major Arthur Murray, who had been chief of the Coast Artillery Corps, and Captains Charles J. Bailey and Charles F. Parker of the Artillery Corps.

We gave 'em the works.

There was nothing that a submarine could do in those days that the *Protector* did not do. The ice was thick in Narragansett Bay, and we sent the *Protector* under it and broke lanes through it. We navigated along under the ice without difficulty and when we wanted to come to the surface we simply tilted her

planes and she came up and broke through. We cooked a meal in her galley and opened the water-lock; we went through the motions of laying mines and cutting cables. In those days our motive power on the surface was gasoline motors, but our ventilating system was so excellent that we could run semisubmerged for some time. Ten hours without discomfort was our record, I believe.

When the Board completed its inquiry the members gave our boat a warm indorsement: "A valuable auxiliary to the fixed mine defense—where channels cannot be mined it will give nearest approach to absolute protection—can patrol a mined or unmined channel invisible to the enemy—pick up cables—great superiority in attacking mine fields—effective use of torpedoes—"

The Board recommended the immediate purchase of five of the Lake boats, one to be used for experimental work in the Submarine School, and the others to be assigned to Long Island Sound, Chesapeake Bay, San Francisco Harbor, and Puget Sound. These recommendations were indorsed by Secretary Taft and were embodied in a bill introduced in the Senate. I was distinctly on a spot. The Navy did not want the Army to get the *Protector*, for the rivalry between the two services was perhaps even livelier than it is now. Little more than a distant acquaintance was professed by the one service for the other in those days. The unseen influence which had operated to prevent a purchase of the *Protector* type by the Navy was still operating. The spot I was on was not only a

spot, but it was a hot one. I was about out of money. My stockholders could not be appealed to again. Some of them might have responded, but others could not have raised another dime.

The Senate discussed the bill for two days.

"I never saw anything like it," Senator Platt of Connecticut told me later.

Two members of the lower house had been working openly as lobbyists on the floor of the Senate during this debate. They ran hotfoot up and down the aisles, carrying messages from the lobby chiefs in the cloak-room. They whispered and swore and pounded desks. So many notes were received and torn up during this debate by two or three of the Senators that the floor near their desks was literally covered.

"This is supposed to be a legislative body in which the members are self-respecting men," Platt added bitterly.

On the morning of the second day I had despaired completely. It seemed that no appropriation would be given the Army for the purchase of our boats and that the Lake Torpedo Boat Company was finally and conclusively sunk. Then I had an inspiration. I saw my friend James L. Norris, who had at one time been my patent attorney, and put the situation before him. Norris was a close friend and associate of United States Senator Gorman of Maryland, who had been showing signs of friendship for the Electric Boat Company.

"Won't you go and see Gorman?" I asked. "Ask him to let me talk to him."

"I cannot do that," said Norris, "but I'll give you a letter." He wrote the letter and I panted off to Gorman's office.

"You cannot see the Senator," his secretary said. "He is now in the inner office changing his clothes. He is about to go on the floor to make a speech."

I've told elsewhere of how men dressed their parts in those days. One could almost recognize a sea-captain, Congressman, bartender, gambler, or alderman by his clothes. Gorman was following tradition in making a careful toilet before going on the floor. I told the secretary that I did not want to intrude on these rites, but I did want the Senator to read the letter I had brought from Jim Norris, for I thought he would be interested. The clerk yielded under protest and presently Gorman's silver tones could be heard from what would have been a boudoir if it had been occupied by a lady: "Come in."

He was pulling on his pants when I came through the door and was too busy to shake hands, but he was not too busy to shoot questions at me. "And talk fast. I'm due on the floor."

I gave him both barrels.

"Then I'll see what I can do for you, Mr. Lake." He marched through the door, majestic in high collar, black frock-coat, wide black hat, and striped trousers. This is said in no spirit of levity. Clothes have interested me less than almost anything in life, but I like to see men in high position look as though they

really amounted to something, and not like any of the first forty men one sees on the street. On my way to the Senate gallery to listen to the debate, I met a friend.

"You're out of luck, Simon. Gorman's going to make a speech for the Electric Boat Company and against you."

I was pretty low by the time I had found myself a seat and settled down to watch what might be the Lake Boat Company's last moment on earth. Gorman had intended to speak for the Electric Boat Company, but Norris' letter plus the fervor with which I had put the other side of the case before him had changed his mind. It is possible that he had never been very firmly fixed in his position. He made a straight, workmanlike, well-fortified speech in favor of the *Protector*, and the Senate passed the bill. But it was only half-way through Congress, for it had now to be sent to the House and the House had other ideas. Finally the conflicting bills were sent to a conference committee.

That is where the dirty work is done in Congress. Each House may pass a bill which neither has any intention of making into a law and both are dynamited in the conference committee. A friend suggested that I ask for a hearing by the conference committee and I went to the room in which it was to be held so that I might mull over the points I hoped to make. No one was in sight when I entered, but presently I heard men in high argument in the secretary's room.

"A lot of Goddamned thieves," one man shouted. I recognized the voice as that of a retired general who was a member of the House Naval Committee. "You men are being paid to keep us from buying the Lake boat. You know Goddamned well it is the best boat."

Some one yelled back a denial. I recognized the voice as that of a manufacturer from an inland city, who had been in Congress several years: "No one bought us. But we'll not vote to buy the Lake boat."

The disputants became more profane and definite in their charges. I thought it would be a pretty good thing if Simon Lake got out of there, for the Congressmen might not be pleased if they knew the man who had most interest in the Lake boat had heard their quarrel. The following day I met the manufacturer on the street and he came up to me with hand outstretched.

"I'm terribly sorry, Mr. Lake, but the House conferees could not support the measure to buy your boat. I have been your friend in this throughout."

The only reply I could have made was to call the man a liar and I did not want to do that. So I said nothing. It is still a pleasure to recall that he was arrested some time later for an offense against the government—smuggling, I think—and was punished. But the harm had been done. Both the Army and Navy wanted my boat, as shown by their formal actions, but Congress would not buy. It had cost us a lot of money, my stockholders could not put up any more money, the Lake Torpedo Boat Company was in debt, and

there is nothing as completely unsalable as a military submarine which no government wants. Only a faint glimmer of hope could be seen.

The war between Russia and Japan was under way. Three Japanese officers had been on board the *Protector*, and while they had not said a word it seemed to me that they had been impressed. The Russian military attaché in Washington had been quite frank in his expression of admiration. "If the United States Government does not buy her I know one government that will."

But that had no real weight with me. It was pleasing to know that two powers at war were interested, but what the Lake Torpedo Boat Company needed was money. The Mitsui Company of Japan—I think it was the Mitsui Company—had talked vaguely of building submarines under a royalty agreement. Then I overheard a conversation which was to have a definite influence, I think, on the military history of the world. I was walking through the corridor joining the House and Senate, accompanied by E. J. Hill, at that time a Congressman from Connecticut, who had warmly supported the Lake boat in the congressional debates, when we met Senator Albert J. Beveridge. Both Hill and Beveridge had recently returned from voyages around the world. Both said they had enjoyed themselves.

"Where do your sympathies lie in the present conflict?" asked Hill.

"I favor Russia," said Beveridge, "and for these reasons. It is a white nation against a yellow one, a

Christian nation against pagans, and an honest people against a lot of damned crooks."

"I feel the same way," said Hill.

I had had no feeling of partisanship. When I had been asked by a man representing the Japanese Government if I would consider a sale to Japan, since my chances of selling to my own people seemed to have gone glimmering, I said that I would.

"Give me a price on two boats, then. The *Protector* is now in commission and you will build another as rapidly as possible."

"Two hundred and fifty thousand dollars each."

"I'll let you know."

I have never ceased to wonder at the fact that in times of war the belligerent parties seem to know all about each other's plans. The Japanese knew the Russian attaché had had trial runs in the *Protector*, and vice versa, although we had done our best to keep these experiences secret. It was the next day after I had put a price on two boats to Japan that I got a telegram from Charles R. Flint of New York. Flint had been called the Father of Trusts by the newspapers, he had been a diplomat, a banker, a promoter, and above all a dealer in munitions.

"Will you take breakfast with me to-morrow at my house on Thirty-sixth Street, New York City?"

I did not know much about Flint, but I did know that this was the equivalent of a royal command—more than a royal command would be nowadays, when kings and princes are going two-a-penny. The

next morning I rang Flint's doorbell and a servant took me to him. He was a hard, likable, businesslike, straightforward man. Many people disliked him because he was sometimes brusque and rather overpowering. I found him easy to get along with, for he put his cards on the table.

"The Russian military attaché will take breakfast with us," he said.

That began to sound like money. I had taken a neutral stand as between the Russian and Japanese in their war, because I had something to sell, and because it has never seemed to me to be good American citizenship to sound off about other people's troubles. But inside of me I was pro-Russian, beyond a doubt. That talk between Hill and Beveridge had subconsciously influenced me. The three of us talked submarine through the breakfast. I told them what I could do with the *Protector* and why it was possible to do it and how I found out how to do it and about my series of trials-and-errors. I was not trying to sell anything to either of them, but I was having a bully good time, talking about the thing that was my life.

"You have an appointment to meet a Japanese officer at four o'clock to-day at the Waldorf, haven't you? He will have authority to close with you for two submarines."

Every time anything like that happens I am as astonished as though it were the first time. I have never known how it is that the agents of one country can find out all about the plans of the agents of an-

other country during a war. But they do find out. I am sure my Japanese friend had guarded himself, and I know that I did not say a word to any one, and that I was the only man in the Lake crowd that knew anything about that appointment. But there you are. Flint knew where and when we were to meet. He knew that I was not committed to the Japanese in any way. I had made them a price, but I was not bound to sell to them.

"We'll have to work fast," said Flint. "I have an agent in Russia and if we get a move on we will sell to Russia by four o'clock. If we fail you can still have time to see your Japanese."

Hart O. Berg was Flint's man in Russia and he knew his way about. Before noon we had closed a deal by cable, by which I was to deliver the *Protector* to Russia for \$250,000, all expenses to be paid by the buyer, and \$125,000 cash to be paid to me in advance. If the *Protector* made good on her trials I was to be given a contract to build five more boats in Russia for \$250,000 each. I was as happy as a boy with a new gun. But Flint was first of all a merchant, and he did not propose to lose a possible customer.

"Never leave any sore spots behind," he said. "If we left that Japanese captain to sit in his room thinking bad thoughts about you we might find we had made trouble for ourselves. Have you got a visiting-card, Lake?"

In those days I still carried cards. Flint turned the corner down and gave it to his secretary.

"Go over to the Waldorf," he said, "and make certain that the Japanese is not in his room. Then stick this card under the door. He will think it is his hard luck that he missed you."

So I was embarked on my Russian adventure.

CHAPTER XVII

Smuggling the Lake Boat Across the Sea

HEAVEN had poured its richest blessings on me, I thought. I had actually sold the *Protector*, after having tried ineffectually to get my own people interested in her. I had a contract to build five other submarines if the *Protector* lived up to my promises, and I knew it would, and I had \$125,000 in my pocket, or in the company's pocket, which was almost as good. Just a few days before the company was broke, I was out of money, and nothing could be seen ahead except trouble. J. P. Morgan and Company gave the money when I asked for it, and I walked on air. After a day or two of that I came back to the brickwork.

"Russia will pay the bills," said Flint, "but you'll have to work out a plan for delivering your submarine. It's contraband of war, you know, and even if it were as legal as peanuts it is not invisible, and the Japanese will try to interfere with you."

He made no suggestions. No doubt he thought he had done his share when he made the sale for me, and I felt that he sat back in his chair and watched my flurries with an amused grin inside of him. The vice-president of my company was Foster M. Voorhees, of New Jersey, and his close friend was Benjamin F. Tracy, who had been Secretary of War. They told me

that while the shipment of a completed submarine would be forbidden it might be possible to knock it down and ship it piecemeal, thus escaping the prohibition of the law. I had been wanting to make some changes in the *Protector's* batteries, and this seemed to be a good time to do it. I sent the batteries back to the makers for remodeling and so relieved the minds of any spies who might be watching. Then I began to scheme a way to get the hulk out of the country and on the seas.

Spies and reporters, and I am not certain which were the more intelligent and persistent, dogged every step of any one connected with my company. This was not to be objected to, for news-gathering is a reputable profession, and a nation at war has every right to get information about the enemy's movements. Even if I had objected I could not have interfered with them. But they were a devilish nuisance. The reporters put me to bed every night and got me up every morning and strange men leaned against every lamp-post and sat on every fence. The funny part was that the spies were both Japanese and Russian. Flint was an old hand at the game, and he had impressed on me that no one should be told about the deal with Russia.

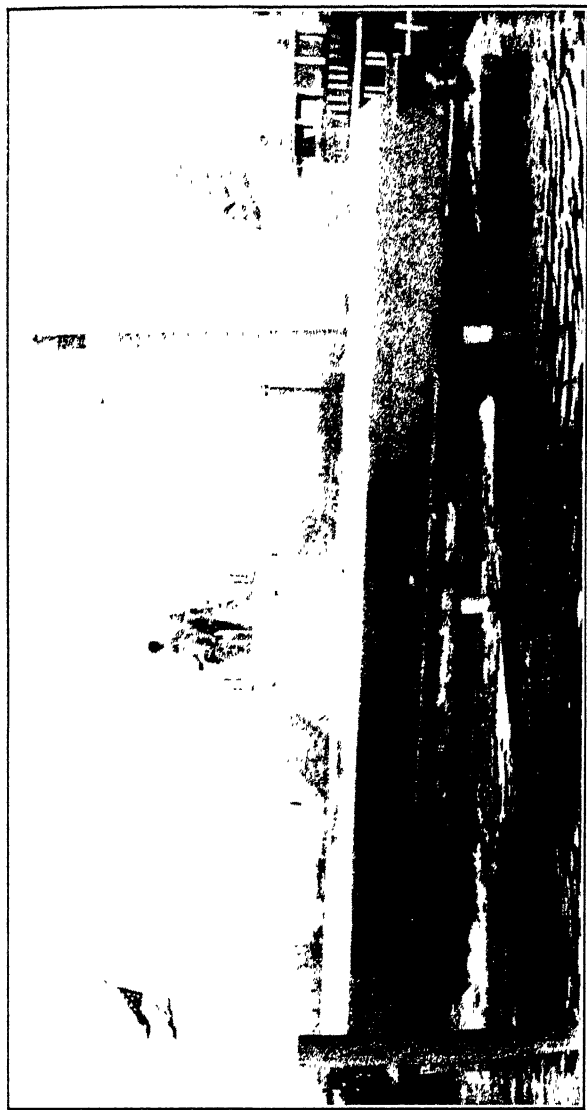
"You can't trust any one. Three of us know now and that's two too many. If you so much as look friendly at one of these Russian spies he'll trade with the Japanese and the Japanese will do the same thing. There's no loyalty in 'em."

Yet any one could guess that there was something in

the wind and every one who was at all interested had guessed it. I was as much on show as though I were in a store window. I had failed in my effort to sell to the United States Government. Every one knew that, and yet I suddenly had money, the Lake Company was solvent again, and the workmen had been paid. The plain inference was that I had sold either to the Russians or the Japanese, for they were the only nations in the market for submarine goods. If that fact were publicly admitted the losing crowd would certainly interfere with any attempt to send the *Protector* out of the country. One night 'Gene Adams, my brother-in-law, who knew that something was in the wind but did not know what it was, for I had not even told my wife, found himself followed by two sets of watchers.

"It was a black, wet, blowy night," 'Gene told me later. "I got into New York and began dodging them. The last I could see of them the two sets seemed to be sneaking around after each other."

I finally hit on a plan and enlisted Flint's aid in carrying it out. He chartered the steamer *Fortuna*, to carry a load of coal from Norfolk to Russia. At Newport I arranged to have timbers cut for a cradle to be set up on the *Fortuna's* deck, but told no one that the *Protector* was to be cradled. All our papers were in order, our names did not appear anywhere, Flint and I ostentatiously busied ourselves with other matters, and the spies and reporters chased other men who seemed to be given to suspicious movements. On the appointed day the *Fortuna* steamed out of



THE PROTECTOR

Launched in 1901, this was the first submarine to navigate successfully on an even keel.

Norfolk Harbor with four thousand tons of coal on board, and made for Newport. There the cradle timbers and a gang of ship's carpenters were rushed on board, and the cradle was thrown together. We gave the carpenters some kind of a satisfying explanation, but did not attempt to swear them to secrecy. An oath of silence would have opened every carpenter's mouth like a satchel.

I went on board the *Protector* at Bridgeport, with reporters at my heels. They wanted to know what I proposed to do and I told them, as I told my own men, that I intended to give the boat a run under engine power only. It was so evident that a submarine without batteries would be useless from a military point of view that the reporters muffed the story. They talked to my men and satisfied themselves that nothing of importance was being planned, for the men had been told to take clothes for a week's cruise.

"I have some things in mind to try out," I told them, "and you don't know what might happen. We might be out for a week."

I had agreed to meet the *Fortuna* in Prince's Bay, near Sandy Hook, on a Saturday midnight. That time was selected because on Saturday the government offices are closed, most government officers are getting acquainted with their families, judges are week-ending in the country, lawyers are hard to find, and even reporters relax a little of their hellish energies and, with the Sunday paper out of the way, settle down to play poker in the city room. To make matters better, a thick fog dropped over Bridgeport Har-

bor, and I doubt if any one saw the *Protector* get away from her berth. We headed right across the Sound and I laid her up in a spot that was almost never visited and waited for night to come. No one could have seen us, for only a little of the conning-tower was showing above the water. When it came dark we started for Prince's Bay.

There the big wrecking barge *Monarch*, owned by Merritt and Chapman, was lying at anchor waiting for us. Her job was to derrick the *Protector* into the cradle on the *Fortuna's* deck. Merritt and Chapman knew nothing of what was going on, for they had engaged simply to lift a one hundred and thirty-ton boat to the deck of a steamer. I suppose I was somewhat oppressed by a feeling of guilt, even if reason told me I was breaking no law, for that big barge looked to me like a blatant advertisement of our affairs. We laid away from the *Monarch* while we waited for the arrival of the *Fortuna*, expecting at every minute that some one would come along and say, "Well, well, boys, and so you're going to take the *Protector* to Russia—"

And the *Fortuna* did not come. Nowadays the two-way radio would have cleared everything up in a jiffy, but then the only thing we could do was to sit on our tails and wait for something to happen. We were afraid the *Fortuna* had been held up by the Government and the *Protector* might be seized and we probably confessed to ourselves—those of us who had been let into the secret—that merely to take the batteries out of the boat was a pretty thin foundation

for a claim that she was not contraband. I sat in the *Protector's* conning-tower for hours, my head sticking out like a turtle, unable to break down and tell all even to the trusted men who made up my crew.

At eight o'clock my heart began to thump. The slow beat of the *Fortuna's* engines could be heard as she shoved into Prince's Bay. Some miserable little thing had detained her, and no one except us worried about it. No one on the *Fortuna* thought that a few hours, more or less, would make any difference, for no one on board knew what we were planning to do. It had been a perfectly kept secret.

When the *Fortuna* had finally made fast to the *Monarch* (and to me, peeping out of the conning-tower across the bay, that operation seemed to take forever), I had the engines started and we moved toward the two steamers. By this time the waters were glittering in the morning sun, small boats could be seen everywhere, all the fishermen along the coast were getting out their tackle, and our chances for escaping observation seemed to have dropped to about one million to one. But luck was with us. Long before the sharpest-eyed fisherman on the bay could have seen our conning-tower a rain began to fall and before long it turned into the hardest downpour I have ever known. It rained not by buckets but by tubs. I could not see the ship's length, and when we finally inched our way alongside the *Fortuna* and the *Monarch* had dropped her chains over the *Protector's* hull and set her big derrick groaning I felt as though my life had been shortened by years. Inside of an

hour the *Protector* was safe in her cradle, and the *Fortuna* was on her way.

My men had guessed, of course, that something was up, but they did not know precisely what it was. Before the *Fortuna* steamed out of the bay I called them together. Even yet I could not be precise in giving them information, for I could not tell what might happen.

"The *Protector* has been sold and is on the way to be delivered to the new owner. I cannot tell you who bought her or where we are bound for, but I would like to have some of you go with me. Who will volunteer?"

I am proud to this day that every one of them declared to go along. Candor compels me to admit that I do not know just what a man could have done who refused to volunteer. He might have had to go just the same, for we could not have permitted him to go back to the shore. The adventure had some of the aspects of a kidnapping, but not one of the men ever regretted it. Some of them did not get back home for seven years.

Meanwhile, the reporters who had been assigned to watch the *Protector*, and the Japanese and Russian spies who had been told off to follow me, had learned that the boat had disappeared. Every newspaper had a first page head-line: "What has become of the *Protector*?"

We were not beaten down by the tremendous volume of news then as we are now. The flight of the *Protector* became a world sensation. The first news

of her was brought to New York by the captain of the steamer *Princess Cecile*, who reported that the *Fortuna* had not replied to his signals, and that he had observed a bulky object on her foredeck shrouded in tarpaulins, which he thought might be the missing submarine. I had returned to Bridgeport from Prince's Bay in order to avert suspicion, if possible, and stayed there for several days. Then I shipped for Cherbourg on the old *Kaiser Wilhelm II*, known to sailors as *Billy the Roller*, intending to go to Russia overland from France.

Landing at Cherbourg I went on to Paris to talk with the Russian ambassador; at his suggestion I changed my name to Elwood Simon and was given a Russian passport. The Simon was kept in for convenience' sake, the idea being that although I could not speak a foreign language I could at least recognize my own name in one. But this idea was sour, for Simon became See-mon on the foreign tongues, and in Russia I was always addressed as Gospodin. That's the Russian way of saying "Mister" with a flourish.

I was instructed to go straight to Libau to meet my boat. The *Fortuna* had been having its own adventures. On the voyage through the Baltic the coverings had been taken off the *Protector*, so that my men could do some work on her, and she stood revealed as a submarine. A Russian destroyer on patrol sighted the *Fortuna* with her incriminating deckload and one of the officers recognized the *Protector* from a picture he had seen. The *Fortuna* steamed stolidly on when the destroyer hailed her, and the little war-ship

wheeled away at full speed to get instructions. Presently she returned with another destroyer and a gunboat as reinforcements and this time a solid shot was put across her bow. When she again refused to stop another shot was put dangerously near. The *Fortuna's* engines were halted and the Russians boarded:

"Where are you going?"

"Libau."

"We don't believe you. We think this submarine is being shipped to Japan. In any case you're going to Kronstadt and we'll escort you in and don't try anything on the way."

A prize crew was put on board and, with the destroyers and a gunboat on her flanks, she moved in to Kronstadt. On arriving at Libau I learned these things, and also that the *Fortuna* was to be taken to the military port of St. Petersburg, or Leningrad as it is now named. So I went on to Kronstadt and on board the *Fortuna* to enjoy a formal luncheon in our honor. As we entered Kronstadt Harbor men lined the narrow decks of the Russian-built submarine *Delfino* and saluted us. Among the guests at the luncheon were Captain Becklemechief and Chief Constructor Bubonoff, the joint designers of the *Delfino*.

"We are training a crew on her," they told us—Captain Becklemechief and Constructor Bubonoff both spoke English as do all Russian Naval officers, "and as rapidly as they are fit we will transfer them to the *Protector* for further teaching. By the time you have your other boats in the water we will be ready to take them over."

That was a brisk way of doing business and I congratulated them. While we were chatting a telegram was handed to Becklemechief which seemed to give him some concern. After a moment he handed it to Bubonoff and the man turned pale. One of them said something to me in Russian.

"Sorry, but I don't understand."

The interpreter spoke up: "These gentlemen have just received the news that this morning the *Delfino* sank at her dock with thirty-five men on board."

CHAPTER XVIII

Gospodin Simon Delivers the Goods

GOSPODIN SIMON felt something clutch at his bowels when he heard of the tragedy of the *Delfino*. I am too old now to bother with any pretense. The first thought in my mind was a purely selfish one, for I did not know how it might affect my prospects. Here I was in Russia, with no word of the language, no intercessor except Hart O. Berg, Flint's partner, with an American submarine sold to the Government, and exposed to the usual and commonplace jealousies and interferences the foreigner must always encounter when he does business. These thoughts scampered through my mind in the split part of a second, and then I reverted to the professional type: "What happened?"

"We'll find out," said Bubonoff.

It is not that we were heartless. The reported loss of thirty-five good men horrified us, but after all we were submarine engineers and it was of vital importance to all of us that we discover what had gone wrong. I should say at this point that the loss of the *Delfino* never affected my relations with the Russians in the slightest. They impressed me as a lovable, kindly, and fair-minded people, but with a broad streak of childlikeness running through their natures.

I do not mean childishness but childlikeness. They might act on the impulse of the moment, but they were always generous and kind. I'll have more to say of them later.

At the dock by the side of which the *Delfino* had sunk we learned that the loss of life was not as great as we had feared. Twenty-three men had been drowned; three of the men who escaped later became members of our crew on the *Protector*. The *Delfino* was lost because of the peculiarly Russian trait of failing to think ahead. It seemed to me that as a people they are inclined to leap before they look.

The regular crew of the *Delfino* consisted of eight men. Her buoyancy tanks were necessarily filled with water almost to the limit in order to submerge with only eight on board. On this occasion her flotation power was reduced by the addition of twenty-seven men to the load, but no one thought of that when the water was let in. The conning-tower hatch was operated by a nut-and-screw mechanism, and when the officer in charge ordered her submerged the water was let into the tanks coincidentally with the closing of the hatch. A passing steamer threw up a wave which splashed into the partly open hatch and one of the untrained men lost his head:

"Save yourselves!" he cried. He got his head and one shoulder out of the hatch and then stuck fast. The man operating the nut-and-screw mechanism could neither close the top nor open it far enough for the man to escape, and the water poured in. One man gave a remarkable exhibition of courage and

cool-headedness. In some way he managed either to pull in or thrust out the man who had been stuck in the hatch and even as the boat sank he opened the hatch cover. The confined air rushed out with a roar as the water-pressure increased and swept twelve men to safety.

Captain Tillian, who afterward joined the *Protector's* crew, told me that the only thing he could remember was that he was standing in the after runway, up to his waist in water, when a sailor spoke to him. "Good-by, Captain. Will you let me kiss you good-by?"

He remembered the feeling of the man's lips against his cheek and nothing more. He was carried the length of the ship by the force of the compressed air and the next thing he knew he was returning to consciousness on the dock.

The *Fortuna* with the *Protector* aboard had been laid alongside a dock in Kronstadt and a big derrick was brought up to lift the submarine into the water. The man in charge was stubbornly opinionated, and seemed to resent the intrusion of a foreigner into his affairs. He refused to listen to me when I objected that the chains he had put around the *Protector's* body were too light for the lift. The boat weighed one hundred and thirty tons, even without her batteries.

"They will break and the *Protector* will crash through the *Fortuna's* deck."

"Nonsense."

One of his superior officers came up and learned

that we were in dispute. He did not interfere, for it is a dangerous thing to overrule one of your own men on the word of a stranger. But I turned to the interpreter: "If he's bound to use those light chains, tell him for God's sake to go slow and easy."

Power was turned on and the *Protector* began to sway up. She was perhaps two feet above the deck when the chains parted and she crashed back into her cradle. No harm had been done, but the commanding officer told that derrick boss plenty.

"After this do what Gospodin Simon orders."

Thereafter I was obeyed to the letter at all times, allowance being made for human frailty. Discipline was rigid in Russia in those days—a trifle inhuman, perhaps. On one occasion I was making a submergence test and as the weather was bad I arranged to go out to sea, where we could get enough depth for safe maneuvering. As a matter of caution I asked that a sea-going tender be sent with us. A storm blew up and I could see through the periscope that the tender was making very heavy weather. Then we submerged and stayed under about fifteen minutes. I was so much interested that we made several more descents and I forgot all about the tender.

At last we had had enough of it, especially as our batteries were about discharged, and headed for the home port. The first of the winter's storms was in full blast and a day or two later the port was closed to navigation. We expected the tender to lead us into the harbor, but nothing could be seen of her, and we had to feel our way in by using the lead. We did

sight one of the light-ships at the entrance of the harbor for a moment, and then the sleet and rain cut off our view. When we at last made fast to the dock we found the port commandant and other officers waiting for us in high excitement.

"The officers and men of the tender which should have escorted you are under arrest, Gospodin. If you wish I shall have them sent to Siberia."

"Please do nothing of the kind. Release them with my compliments."

The explanation was that the tender had lost sight of us because of our submerging and the storm had grown so furious that the captain feared he would lose his vessel if he did not run for port. As it was she lost everything loose on board. I did not blame him and ultimately got the port commandant to accept my view, but for a time he was adamant. The tender, he said, had been sent to escort us, and should have stayed with us no matter what the weather might be. That kind of discipline makes for absolute obedience, but it does not encourage men to think for themselves.

Once a stupid man in charge of gasoline-loading operations overflowed a tank in one of the Russian submarines. This was observed by a muzhik at work sweeping the dock. An explosion took place, several men were badly burned, and an inquiry was ordered. One witness was the muzhik. He said that he had noticed that the gasoline tank had been overflowed and that loose gasoline was in the body of the boat, and

admitted that he knew that a spark might cause an explosion.

"Then why didn't you give the alarm?"

"It was none of my business. I have been taught to mind my business. That is to sweep the dock."

I almost lost my life, the lives of several high-ranking officers, and the *Protector* because Russian discipline was in use only in the ranks. Soldiers and sailors could be made into automatons but officers were permitted to make fools of themselves. One of the trial conditions was that we should run the *Protector* under her engine with her decks submerged and her conning-tower awash. We were in the Gulf of Finland, and I was standing in the open hatch with the *Protector* running under these conditions. She was ready for instant submergence, and the conning-tower was held above the water by setting her hydroplanes down. By closing the hatch cover and setting the planes the vessel could be submerged in fifteen seconds. I had so much confidence in her stability that I had no hesitation in leaving the depth-controlling levers for considerable periods. We ran through a school of small fish, and I indicated to the officer at my side that I was going out on the conning-tower to look at them.

There were about three feet of water over her decks and the top of the tower was not more than eighteen inches from the surface. All at once the boat began to go down. I made one frantic leap into the conning-tower, pulling the hatch cover after me, and as I landed on my feet I heard the water ripple over the

top of the tower. If I had been a single second slower the water would have poured in and the craft would have gone down with all hands. I had not had time to get my breath when I saw that the senior officer was shaking with laughter. He was a very tall man, so that he had to bow his shoulders to stand in the conning-tower.

"A good—joke—on—Gospodin Simon," he gasped, wiping the tears out of his eyes.

He had set the hydroplanes a little lower in order to frighten me, in which effort his success was complete. I had always said that neither a submarine nor anything else in this world can be made safe against carelessness or folly, and this confirmed me in the belief. Forever after, I took care that all controls should be guarded against practical jokers and other congenital idiots. Nothing could be done about it with this highly placed jackass who almost drowned us in the Gulf of Finland, although if he had been a muzhik or a sailor he could, and almost certainly would, have been sent to the salt-mines. As I was engaged in selling my boats I could not even swear at him. All I could do was to wipe my forehead and smile a sickly smile. He later became a high admiral of the fleet.

The batteries which I had sent to the factory before sailing from Prince's Bay managed to get thoroughly lost and it was three months before we could find them. At last they came and I was ready for my official trial. The *Protector* had as competitors a Holland boat, the *Fulton*, from the United States, and a

French and a German submarine, the latter from the Krupp shops. The Holland boat refused to run after trials at the place selected, the Krupp boat would not function, and the French boat failed. The *Protector* made good, and the Russian Government confirmed the order for five more like her. It was during this series of trials that I ran into the military harbor of Libau on wheels, as I have previously told. After this operation one of the senior officers of the Russian Navy said, "Gospodin Simon, if I were in command of a fleet and knew that you and your boat were in the vicinity I would up-hook and steam away—ve-ry fast, Gospodin."

CHAPTER XIX

Course of Naval History Almost Changed

THE naval history of the world might have been changed by me while I was in Russia. I say "might have been." There is at least the probability that it would have been.

It was not changed because the Lake family was incurably moral.

Mrs. Lake and I had behind us generations of God-fearing and law-abiding people. We had with us our three children. Before our eyes was the bad example of the most profligate society in recent history. I love the Russians for many things, but those we were able to observe were as lacking in morals as so many mice. They were not a wicked people, nor mean nor vicious. They were simply unmoral from the point of view of the New Jersey Lakes.

Grand dukes did not hesitate to flaunt their mistresses before the public. So far as we could observe the public did not care. They appeared with their women at the theaters as nonchalantly as though they were wives. The public seemed to feel that four grand dukes plus four loose women in Worth gowns and Cartier tiaras made a box at the opera practically perfect. If there was a hint of criticism I never caught it. I remember that one night at the opera, in what

was then St. Petersburg, a grand duke, a cousin of the Czar, and his *belle amie* were having a dreadful racket in the lobby. My companion was an American correspondent who understood Russian.

"And was she giving him hell!" said he.

The regulations governing the marriage of officers of the Army and Navy were very strict, and in consequence many officers entered into irregular alliances. These were accepted in the most matter-of-fact way by all concerned. On one occasion I called at the home of an officer of high naval rank.

"I want you to see my children," he said proudly.

Three of the finest youngsters I've ever seen were called in. They were evidently as fond of their father as he was of them. Later in the evening I met their mother, a handsome, intelligent woman, and in some way we got to discussing the tie that bound them.

"He wants me to marry him," she said, "for he is in a position now to defy the restrictions. But of course I will not."

The romantic American thought that she was a woman who would sacrifice herself rather than run the risk of injuring the man she loved, but that was not the idea at all. When I finally got my quaint thought over to her she was rather angry.

"If I married him I would put myself in his power. Why, do you know that if I were his wife he could do anything he wished—put me in the kitchen if he wanted to—and bring another woman here to take my place. Of course I will not marry him."

These deflections from the course of strict morality

were not confined to the higher nobility, but seemed to be characteristic of the Russian scene. I often found advertisements in the newspapers in which fathers offered to sell their beautiful daughters to the highest bidder. The proffer was not stated in precisely those terms, but it came to the same thing: "Beautiful girl, just turned eighteen, well educated, sings divinely, a graceful dancer, intelligent, good-tempered, entertaining. For particulars address So-and-so."

On one occasion I was visiting at the home of Grand Duke Alexander Mikhailovitch, with whom I was talking business. He stepped to the window and waved to some one in the house on the other side of the little paved area.

"Come over here, Gospodin Simon, and see the three daughters of the Czar."

This was at Peterhof, where the Czar had his summer home. Directly the Grand Duke and the children began to throw kisses at each other. He said to me, "Throw a kiss at them."

I did so and they responded with great glee, just as any other little girls might do. They seemed to range in age from about six to twelve years. At last an old lady came into their room, saw what was going on, and snapped down the window-shade. I said to myself, "You poor kids."

Even to my unaccustomed eye there were indications of unrest in Russia, but if some one had told me that the three little girls to whom I had been throwing kisses would be murdered in a cellar with

their father the Czar and their brother the heir apparent to the crown I would have thought him mad.

What we of Puritanical descent consider unmoral—not to put too fine a point on it—is often condoned in Europe for reasons of state or the maintenance of estates, and in the higher social circles state marriages are sometimes forced on the parties to the contract. The natural consequence is that they sometimes seek more congenial companionship.

I spent seven months in Russia on my first trip, and when I returned I wanted Mrs. Lake to accompany me. She did not want to leave our children but a translation of some of the advertisements I had of beautiful and talented girls for sale changed her mind. I told her among other things of a conversation with a petty officer on board the *Protector*.

"Gospodin," said he, "I have a very lovely wife. She is not only beautiful, but she has a sweet temper and is talented. I would like to sell her to you, Gospodin, so that you can take her to America with you."

"How much?"

"Only fifteen rubles, Gospodin." That was, at that time, about seven and a half dollars. "Surely that's cheap enough, Gospodin. You could not get another girl like her for so little money."

"Don't you love her?"

"As my life, Gospodin. With all my heart. She is the treasure of my soul."

The puritan in Simon Lake began to stir himself. No doubt I glared at him. Here, I said to myself,

is a contemptible dog who would sell his wife for a little drink money. But I was to take a different view before the talk was finished, and I think that the reader will agree that in the seaman's offer to sell his wife a clue is to be found to the reasons why a blood torrent swept through Russia not many years later.

"I love her so dearly, Gospodin, that I could die for her. But I think that you are a kind man, and if you buy her and take her with you to America she will be safe and happy there. When I have finished my three years in the Navy perhaps I can get away to America and maybe you will sell her back to me."

When I told Mrs. Lake this story she decided to pack her trunks and go with me to Russia.

We built the five submarines of the *Protector* type and several others of the large cruising type for the Russians during the war with Japan, although the *Protector* was the only one to be delivered in time to be of actual service. She was stationed in the harbor at Vladivostok and it was said at the time that only her presence kept the Japanese from an attack. After the war I was informed that the Russians proposed to scrap their entire fleet of surface vessels and build a defensive navy consisting entirely of submarines.

"We will turn over to you our new ship-building plant at Reval," (now Talinn) said an official spokesman, "furnish you a working capital of fifty million rubles, and guarantee you a handsome profit on a royalty basis."

The explanation is not only that they were satisfied with the performance of our submarines, but that the Russians are not a warlike people. The war with Japan had been intensely unpopular. The story was widely believed, and may have been true, that it was brought about through the machinations of the mistress of one of the grand dukes, because her man was in a position to make enormous graft by manipulating war orders. The fall of Mukden was hailed by a great popular demonstration. In the rebound from the war the Russians believed, and I believed with them, that a submarine navy could make their ports impregnable. Their only thought was to make certain of their defense. A war of aggression was not even conceivable to them.

Suppose I had accepted their offer?

The submarine weapon was then in its infancy. The Lake boats were years in advance of the rest of the world. With a fine, up-to-date, ship-building plant at my disposition, freedom to go ahead and experiment at will, and with all the money in the world at my disposal, after a manner of speaking, the Russian submarine navy could have been made into an unbeatable arm before any other nation had even awakened to what was going on. No surface fleet will ever dare meet a submarine fleet of the same relative size, cost and man-power being considered. This is a fact which must be self-evident.

A sufficiently large charge of high explosive detonated under the keel of even the greatest battleship will break its back. There is no reasonable limit

to the size of such a charge. A battleship is helpless to evade a completely modern submarine, because a submarine can be built which will move submerged without making any noise whatever to be picked up by the ship's hearing devices. The battleship would have but two chances of safety. One would be to hide in mined and netted harbors, as the fleets did during the World War, and so become merely a houseboat for handsome admirals to live on. Or else such a ship must be built so solidly of steel that she could be no more successfully navigated than a flat-iron. But we did not build a submarine navy for the Russians.

The Lakes had reached the point of rebelling against the simple immoralities of their very pleasant hosts. They had three children to think about. The state of Connecticut may be a trifle short on palaces, caviar, and champagne, and the grand dukes are apt to be doormen at restaurants, but it is a good deal better place in which to bring up children. We decided to go home by way of Berlin. Thanks to the success of the Lake boats in Russia I had been able to build up an European organization, and in the six or seven years I spent on the continent we pretty well established ourselves in Russia, Germany, Italy, Austria, and England. After I opened our plant in the United States the round trip of inspection involved traveling about seventeen thousand miles.

I am somewhat puzzled by the reports of the apparent ineptitude of the Russians in dealing with mechanical matters. I found them excellent mechanics, for the most part, and in some things they

were way ahead of us. Once I needed to have a bronze sleeve made to fit over a reversible propeller. This reversible propeller was one of my patents, and I was the first to make use of it on a large boat. I knew I could not get the sleeve I needed from the United States in time to do me any good, I might never be able to get it from England, and yet the fact remained that I had to have it right away. The manager of a Russian foundry said, "Let me make it for you, Gospodin Simon."

I thought he was talking through his hat, but I was willing to listen.

"I'll have it for you at four o'clock to-morrow morning."

I knew that was nonsense, even if he did not. The best American maker might not be able to make that sleeve in less than two or three weeks. But he put his experts to work overnight and the sleeve was ready for me in the morning, a perfect piece. They could cast steel as we could not then, and I do not know that we could do as well now. I have seen cast steel go under the planer and a shaving turned off one-eighth of an inch thick, one-quarter of an inch wide, and as long as you wanted it. There has never been any doubt in my mind that if we had accepted that Russian offer we could have outbuilt the world in submarines. Their workmen were all right, but their morals were too uncertain for the Lake family.

It was during this stay in Russia that I missed getting on board the newly invented airplane, to be a bit metaphorical. The Wright brothers were then

hard at work on their first plane. There has never been another built that has equaled that first Wright plane in efficiency per pound and horse-power. The American Government had refused to listen to them, just as it had refused to listen to me, just as it has always refused to listen to men with ideas. My recollection is that the Wrights had not yet made their first flight at Kittyhawk, but they had drawn their plans, and when the Government refused to listen they tried Charles R. Flint. That gray old adventurer's eyes were always open, for he had never been tied up in red tape or dulled by the air in government offices. He sent the papers on to Hart O. Berg, his representative in Russia. "If this thing is any good I can get the European rights," Flint had written.

My offices were in the Berg establishment at that time. Berg was engaged to marry a young American lady and he had a dinner date that evening. While he could put off the papers he could not safely delay the date, so he put the drawings on my table.

"I wish you'd look this stuff over," he said. "I don't know anything about it. Besides that, I'm busy."

I worked over the Wright papers all night long. When Berg came into the office in the morning I was still there. "If I were you I'd wire Flint to take the European rights. These young fellows have something."

I might have had a share of it, but I did not. I had the money at that time, too. Flint and the Wright brothers cost me a million dollars and the best agent

a man ever had, for Berg grew so interested in the flying-machine that he almost forgot my contraptions. There was a funny side issue to this Wright affair sometime later. In 1899 we had an office at No. 11 Broadway, with my father in charge. One day my eye caught this advertisement in the old New York *Tribune*: "I have invented a flying-machine that will fly. Those interested address J. C. Lake, 11 Broadway."

I said to my father: "You're over twenty-one and can do as you please, but you must remember this. People think I am crazy because I say I can travel under water, but my submarines will work. If another Lake offers a machine that will fly they'll think we're all crazy."

"I guess you're right," father replied. "I'll drop it."

When Berg took the Wright representation in Europe I cabled father releasing him from his promise. Of course I did not tell him what I had just learned, but it seemed to me only fair that he should at least be able to begin again on the work I had stopped years before. He did not do so, but he did build one of the first airdromes in the United States, near our home at Bridgeport. As I write this I am reminded that he is now ninety years old and still going strong.

CHAPTER XX

Inventor Is Gypped by the Germans

FOR the sake of emphasis I shall use a Sunday Supplement sentence. It is intentionally flamboyant and egotistic. Yet it is essentially true. Here it is:

I might have been the World Master of Submarines. But I muffed my chance.

I blush when I reread that statement. But the fact is that in Berlin I was offered a post by the Krupps which would have involved my building or rebuilding the submarine navies of all Europe. The Lake submarine would be used by all the European nations—Germany, Great Britain, France, Italy, Austria, Russia—either in original form or in adaptations. Only my own country and Japan would not share in this.

Any one who has ever had anything to do with inventors will have noted one thing. An invention is rarely perfected to the liking of its author. He always has a little bit of business here, a little bit of business there, as the song tells of the old lady on the village square. He cannot go near it that he does not see the possibility of adding a gearing here or stepping up on the power. If I had accepted the offer of the Krupps I would have been engaged in turning out a

submarine which would have been a distinct advance upon its predecessors. Lord knows what might have been the upshot. To-day's surface-skimming navies might have been outmoded. The outbreak of the World War might have been hastened. It might have been made altogether impossible. Any one's guess is good.

The Lake Company built eleven submarines in all for Russia, and others were subsequently built by Russia of the Lake type. Then we moved to Berlin, primarily because Mrs. Lake and I feared the effect of the Moscovite morals on our three children, and I opened an office there. The Krupps had had various European contracts for building submarines but they had had also a good deal of bad luck. The boat-builders of the world had not yet accepted my principle of submersion as opposed to diving, and the consequence was that other submarines "porpoised," as they called it. They leaped out of the water and dived back into it after the fashion of a flying fish. One of the Krupps' boats stuck itself forty feet deep in the mud of Kiel Harbor, and a battleship was called to pull her out.

I built the first two submarines Austria ever owned, and had a contract by which I was to have been paid royalties on others which were to be built in the national shipyards. Other countries were interested. Russia wanted me to build her a submarine fleet. Business prospects were good everywhere. One of the German princes invited me to visit the yards at Kiel and the works at Essen as his guest and shortly

afterward I made a contract with Krupps on a royalty basis. As I remember it I was to be paid 6 per cent on German business, $7\frac{1}{2}$ per cent on Italian business, 12 per cent of the Russian, and 400,000 marks a year as consulting engineer. I turned over my plans to the Germans and a contract was initialed along the terms I have stated.

I should have signed that contract. Instead of doing so I sent it to the United States to put it before my Board of Directors. For various reasons they declined to accept it. I had a nervous breakdown in consequence and was sick for five months.

The fat was in the fire when I returned to Europe from the United States. I was like the average inventor in one respect. I never had enough money to protect myself. I had not registered my patents in Germany, and during my absence the Germans discovered this fact. When I came back they were somewhat apologetic—I state this to their credit—but they were quite firm.

“We have your plans,” they told me, “and you have no patent protection. Therefore we shall build the Lake-type boats for ourselves.”

There was nothing I could do about it. My European business began to fade out. Italy paid me \$50,000 for a three-day conference during which I told her experts what was wrong with six new submarines, and there was some little profit-making business with Austria, but submarine manufacturing in Europe seemed to be through as far as I was concerned. I had had a contract with Russia which the

Krupps had been willing to take over, but the first signs of the Russian revolution-to-come were visible everywhere, and the Krupps preferred to stay out. About this time Admiral Barondon, then head of the Kiel works, talked with Hart O. Berg, and Berg reported the conversation to me.

"I met Lake on the street to-day," said Barondon. "He said nothing about the way in which we have treated him—taking his plans and refusing to pay him royalty. I was ashamed to look him in the eye."

It was about this time, perhaps somewhat earlier, that I met Admiral von Tirpitz. He then shared the opinion of the sea-surface admirals of the world that a submarine was only an irritating toy, but after he had made a more careful examination he changed his mind. I had dwelt at some length on the value of the submarine as a defensive weapon.

"Ah, yes," said von Tirpitz, "very good indeed for defense. But that boat would also be good for offensive purposes, and that is what we shall want her for."

That was ten years or more before the World War, but I have no doubt whatever that the train was laid then that afterward exploded the submarine sea-scurge which almost starved Great Britain and, by a process of ricochet, brought the United States into the war. It is likely, of course, that even though she had not been exposed to the attacks of the U-boats, Great Britain would have done her utmost to induce the United States to help in her defense. It is in no spirit of criticism that I say that it has always been the British policy to coax other people into fighting

her battles when possible. But if it had not been for the heat-wave of propaganda in consequence of the U-boat successes, it is possible that we might have kept our heads better than we did.

It had seemed to me that my successes in Russia and Europe generally might have somewhat softened the heart of the Navy Department. After all, I had only been making and selling boats to Russia because I had not been able to sell them at home. I had a very real desire to put in the hands of our Navy a submarine which was better than the best anywhere else in the world, so I had instructed the Lake Torpedo Boat Company to proceed with the building of the *Simon Lake X* at the Newport News yards. There was an informal understanding that if *Number Ten* was all I said it would be, the Navy would buy it. When I was informed that *Number Ten* was about ready for its trial runs I came home, and brought some members of my operating staff along. My heart was light. I was a proud man. I should have known better. At the Newport News yards I was told that although the men had been working overtime, the *Number Ten* would not be ready on the date promised. I asked the United States Navy Department to grant me ten days' more time.

"No," was the curt reply.

The Navy Department absolutely refused to look at the *Number Ten*. Some unofficial runs were made by officers stationed at Newport News, along with officers representing England, Germany, and Brazil. One American officer went to Washington at his own

expense to beg the officials of the Navy Department to conduct a test of the *Number Ten*. When he returned to Newport News he kept out of my way for several days. At last I met him by accident, and asked him what luck he had had.

"I feel like retiring from the Navy," he said, bitterly. "I am ashamed, soiled."

I did not ask him what he had learned because I knew better than he did and had known it longer. Only submarines on which had been chalked the O.K. of certain financial interests would be looked at by the Department. I did not waste much time when I found the door into the Department was still barred against me. Russia wanted the *Number Ten* and I sold her. I had had many uncomfortable experiences in Europe, but I had never come in contact with the particular kind of dirt which seemed to be knee-deep in the corridors of our congressional halls.

I was preparing to return to Europe, discouraged and furious. At this time Sir Tennyson d'Eyncourt opened a conversation. He was a representative of the Armstrong-Whitworth Company of England, and afterward became chief constructor of the British Navy. Sir Tennyson had thought it worth-while to come to the United States for the sole purpose of watching the trials of the *Number Ten*, although I had not been able to get a single officer of the Navy Department to ride down the Potomac River to Newport News.

"I like the *Number Ten*," said Sir Tennyson frankly. "We might have a chat."

As the result of that talk we initialed an agreement for the manufacture of boats of the Lake type in the Armstrong-Whitworth yards in England, and the payment to the Lake Torpedo Boat Company of a substantial royalty. D'Eyncourt returned to Great Britain to talk this agreement over with his principals. A few weeks later I received a cable from him, asking me to come to England and conclude negotiations with Sir Andrew Noble and other directors of the Armstrong-Whitworth Company. I cabled my assent, of course. The contract promised to make us a good return. But we had not reckoned with the agents of information, commonly called spies, who seem to be active in every world capital. I have no doubt that they sold news both ways, but the important fact to me was that they notified the Russian Embassy in Washington that I was on my way to England to make a deal with the Armstrong-Whitworth Company. Consider the situation at this point:

I had been selling Russia her new submarines.

Russia had just concluded her unfortunate war with Japan.

Great Britain and Japan were joined in a naval alliance.

Therefore Russia did not want Great Britain to obtain the new submarine weapon, which might be used to aid Japan in future hostilities. Russia promptly notified my agent, Hart O. Berg, in Berlin that a check for \$750,000 on account for the money due me for submarines was being forwarded to me at Berlin.

"But if Lake so much as sets foot in England that check will be cancelled and no money will be sent in the future."

The cable reached Berg just as he was sitting down to dinner. He had a number of guests of the higher social order, he had been very recently married, and he knew quite well that a faux pas might interfere with his future prospects. He was also a sharp-set American business man. He left the table, dictated a wireless to me on board ship, and then started for Plymouth, England, the first port of call for the steamer on which I was traveling, to see to it that I did not go down the gangplank. He was still wearing his dinner clothes.

Berg did not reach Plymouth in time, and an extraordinary accident almost cost us three-quarters of a million dollars. Our baggage had been hustled off the ship as soon as the steamer tied up to the dock, for I was in a hurry to get to London and talk business with the Armstrong-Whitworth people. Mrs. Lake and I had just moved to go ashore on the tender, pleasantly aware of the glitter of the lights on the water of the harbor and the cavernous emptiness of the landing shed, when the chief steward rushed up to me.

"Sorry, Mr. Lake," said he, "but a wireless has been sent on board, sir, addressed to a person unknown. I thought that it might possibly be for you, sir. The name is not unlike your own."

"Not my name," I said, "but I'd better tear it open.

That name might be a European telegrapher's idea of Lake."

The wireless, of course, was from Berg, informing me of the conditions imposed by the Russian Government.

"I'm staying on board, steward, and going on to Cherbourg. Will you get my baggage back from the tender deck?"

"Oh, but I can't, sir. It is on the bottom of the pile and we are just about to sail."

"Here's five pounds," I said. "Get that baggage. If you don't we'll just have to sail without it."

I do not know how many stewards he put to work, but we had our bags back in the cabin before the steamer had cleared the harbor. At Berlin we cashed the Russian check, but things began to happen to us. The Germans were not content with taking my plans and refusing to pay me royalty on the boats they built with them. They demanded that I pay them tax on the business conducted elsewhere by my entire organization, on the theory that my principal office was in Berlin and that the company was in fact a German company. That was the last straw that broke the back of my patient camel and I decided to leave Berlin.

There had been other straws. I had been useful to the Germans, but I was forced to conclude that German officials can be pretty nasty.

We caught a man named Beyersdorf, a draftsman in our office, copying the plans we had drawn for some large submarines designed for Russia. He was bounced out of the office and fired with every benefit

of bell and book. Then what did he do but sue me for the injury to his "good German honor?" He did not have any honor, as far as I could see, and the courts agreed with me, for he carried his case on appeal as far as was possible. It annoyed me.

Perhaps the insult I had given the thief's good German honor accounted for it, but not long after my house and office were searched on a charge that I had passed counterfeit money, and I was ordered to appear before the *Hoch Politzei*, on my return from a business trip in the country. The day I got back I notified the High Police that I would appear before them at once if they desired, but that if this was not convenient, I must leave for Vienna to keep an appointment with the Austrian Minister of Marine.

"There is no reply to the good Mister's message" was the word my German representative brought back to me from his visit on my behalf to the *Hoch Politzei*. I did not return from Vienna for three days, and when I did so I learned that I had been guilty of lese-majesty and must not leave Germany until I had purged myself of this offense. But I was due in St. Petersburg immediately, so I asked American Consul-General Mason to advise me.

"Go see the *Hoch Politzei*. Find out what it is all about."

At the police bureau I was given an arrogant run-around. I must sit there and be quiet and bow from the belly whenever a police officer came in, none of which I did. I had taken Professor Schade with me to act as interpreter, for I had little more than no

German, and after genuflecting and *mein-herr*-ing he learned that the only official who had any authority to take my matter up was the police prosecutor. The policemen simply refused to bother him with such a trivial matter. It was of no importance to them that I had a reservation for that night on the Nord Express for St. Petersburg, or that my engagements in Russia were of considerable importance. Simon Lake of New Jersey blew up.

"I'm damned sick and tired of this," I said. "I'm going to leave."

I started down the hall, meeting as I did so a man in a black robe and a mortar-board hat. The police officer whispered to Schade, "There is the police prosecutor. If Herr Simon wishes to speak to him on his own responsibility—not involve the police—"

"What's the matter?" asked the police prosecutor in perfect English.

We told the story and the prosecutor said that the trouble was that a man named Lake had been charged with a crime. There was no thought in his mind that I was the one involved, and if I would go over to the Crime Detection Bureau and confront the complainant, I would be discharged at once. "I will telephone instructions. Mr. Lake's arrest was merely a part of our plan of procedure. The police undertook to arrest every foreigner in Berlin named Lake, and the quickest way out is to go over to the Bureau and stand trial."

The other Lake was tall and black-haired and I am short and red-haired, but this made no difference.

The order had gone out for the arrest of all Lakes and I had been caught. The other Lake got away, as far as I know. He made me a lot of trouble, but the stupidity of the police was such that I sympathized with him and sincerely hoped he would never be caught. His crime, incidentally, was the passing of \$250 in Confederate money.

With one thing and another I had had all I wanted of Germany, and when I learned of some sunken treasure off the coast of Holland, I determined to close the Berlin office and go to England. I opened offices at 11, Regent Street, London.

CHAPTER XXI

Hunting for the Lutine's Treasure

SIX million dollars is a lot of money. In bank credits it is an enormous sum. In gold and silver bars and stacks of golden guineas it seems even more. It inflames the imagination. For one hundred and fifty years Dutch fishermen have patrolled the coast of the Zuider Zee, near the Texel in Holland, and now and then their patience is rewarded by the finding of a golden disk or two. The markings have been almost obliterated by the scouring of the sands, but they were once English guineas, and they are to-day tangible evidence that somewhere on the sand-banks of the Texel Roads lies the noble freight of the *Lutine*.

There is no treasure-ship story so thoroughly documented as that of the old frigate. The *Lutine* Bible was for years one of the chief treasures of Lloyd's of London—I am proud to say that I own it now—and those who had influence were permitted to glimpse it. It is bound in black oak recovered from the *Lutine's* hull and ornamented with polished copper from her sheathing, and it contains the history of the *Lutine's* loss. Seventy-five of its pages are covered with the fine handwriting of Lloyd's clerks, and sixty-eight pages remain blank. I still hope that one

of these days I may tell in them the end of the *Lutine's* story.

My European hopes had gone glimmering. Russia was engaging in the first movement of the revolution which was ultimately to result in the Soviet state. The Krupp contracts with Russia for submarine-building, under which I should have benefited, were waste papers, for the Krupps refused to take chances. Austria was building boats on the Lake plan and still owes me money for royalties. Germany had taken my plans, laughed at me because I lacked patents, and was building Lake submarines. Italy was building her own boats along the Lake lines. The United States was still closed to me. The Lake Torpedo Boat Company had made money, and I was anxious to develop the commercial aspects of the submarine.

Salvaging the *Lutine* was an undertaking that was right down my street. I would have succeeded except for the interposition of factors to be dealt with later. I may yet succeed. There are six million dollars—four million dollars—perhaps only three million dollars—to be torn out of the sands of the Fly Banks. The *Lutine* adventure does not depend on tradition or faded maps or records illegible with age. Everything is known about it, except how to recover the treasure.

I know that I know how.

The *Lutine* was a frigate of the French Navy, captured by the British during the republican demonstrations in France in 1793. It is more accurate to say that the French Royalists turned her over to the

British. She was eventually overhauled, resheathed and to some extent rebuilt, and sent to the North Sea station. In 1799 there was a money panic in Hamburg, several banks blew up, and a number of merchants who were correspondents of London firms were in grave danger of bankruptcy. London decided to come to the rescue, precisely as in more recent years Great Britain and the United States propped the faltering franc. Treasure amounting to between five and six million dollars was placed on the *Lutine*, and she was ordered to take it to Hamburg.

Nowadays that kind of a shipment would be despatched in precisely the same way. There was a war on in which France, England, and Holland were engaged, and the risk of loss if the money were sent by a commercial vessel would have been very grave. The war had its periods of activity and lethargy, but it was apt to break out at any moment or place. War was a more leisurely and on the whole a pleasanter occupation in those days. Lloyd's granted insurance to the amount of \$4,500,000 and additional insurance was taken out in Hamburg for \$800,000; in addition about \$750,000 of British Government cash was placed on board. There is some uncertainty as to the actual total, and one sum that had been earmarked for the *Lutine* reached the docks too late, and was afterward sent to Hamburg by packet. But approximately six million dollars in gold and silver specie were in her strong room when she sailed on October 9, 1799. Then something went wrong.

It has been generally accepted that the *Lutine* was driven off her course by storm, but no reasonable explanation has ever been offered for the fact that she was driven so far off. A suggestion that there was treachery on board may be passed as read but not approved, for there is not the slightest evidence of it. The *Lutine* struck the Texel reef and broke up, and one of the two men saved died later from exposure. Lloyd's paid the face of its insurance policy, and preserved its proprietary rights of salvage by the same legal means. These rights have been kept alive ever since.

The *Lutine* lies in seventy feet of water on sandbanks that shift with every storm. This accounts for the fact that not one of the attempts at salvage which have been made has been financially successful. It is true that immediately after the wreck some of the Dutch fishermen of the Zuider Zee had the kind of experience that only takes place in dreams, for the *Lutine* lay in only twenty feet of water. Some gold was tonged out of her hold, and they were able to dive for and recover other treasures. But shortly afterwards the frigate slipped off the reef into deeper water and there she lies to-day. About \$420,000 has been recovered, but the costs of the different attempts probably exceed the salvage. These attempts, according to a published statement, were made with, "rams, grabs, kippers, and nets."

I made a contract with Lloyd's, by which I agreed to stand all costs and take 50 per cent of the recoveries, during a period of two years. It seemed to me

certain that the steel tube which I had used with success in cargo-salvaging operations in Long Island Sound would be ideally adapted to this job. It had already proven its efficiency, and I believed that it was the only instrument that could be used under the existing conditions. Every storm washed the sand back and forth over what remains of the *Lutine*, so that divers worked under almost impossible conditions. It had been demonstrated by earlier operations that dredges are not able to bring up gold and silver bars. They had been found but they almost invariably slipped through the jaws of the drags. Divers, however, could stand in the air-lock of my tube and cover the ground literally inch by inch. They could put on diving suits in the air-lock and explore the wreck and the vicinity and return to the protection of the air-lock at will.

My friend and agent Hart O. Berg was then in London and we took offices at 11, Regent Street, which were shared for a time by the Wright brothers. Berg was greatly interested in our treasure-hunting prospects, for we had two elements which no other expedition that I have ever heard of possessed. In the first place we knew exactly where the gold was lying, and in the second place we had a tested instrument by which it might be recovered. He proposed an English company with a capital of £50,000, in which Sir Christopher Furness, Sir Charles MacLaren, Sir Henry Normand, and Lord Palmer were interested. All the members, to the best of my knowl-

edge, were either ship-builders or ship-owners and thoroughly familiar with the conditions under which we would operate.

I began to build my tube immediately. When it was completed it was ninety-five feet long, and susceptible of extension if needed. The interior diameter was great enough to permit divers to move in it easily, and it was my intention to suspend it from a surface vessel by a kind of ball-and-socket toggle at an angle which would enable men to walk up and down on the ladder as though on a stairway. At the foot was the air-lock, provided with a sea-door and portholes, and large enough to accommodate the diving apparatus, tongs, grabs and the like, which the divers would use. This was given a test in the British Channel, under conditions approximating those to be anticipated in the Zuider Zee, and it worked perfectly.

While the tube was being built I had become interested in another treasure wreck, the history of which is one of the most romantic in my knowledge. When the Spanish Armada sailed to attack the coast of England, its flagship was the *Florencia*. On board the *Florencia* was not only a huge treasure in gold and silver, but a gem-encrusted crown and, so tradition says, a lady who was to have been crowned with it as the Queen of England. I was never sufficiently interested in the lady to discover whether or no this story was true, but the rest of the *Florencia's* history seems to be well documented. The history of the Armada's defeat is common knowledge. The *Florencia*

took to her heels and found refuge in Tobermory Bay off the coast of Scotland.

A confused tale of "Irishers" and their operations and a feud between the Macleans and the Macdonalds and the Clan Ranald and the Clan Tan follows. I say it is confused, but in fact it is for the most part definite enough, although it has no part in this narrative. The Spaniards allied themselves with the Macleans, being paid for their promised aid in food, but before they delivered the aid they demanded that Donald Glas Maclean, son of John Dubh Maclean of Morvern, be sent on board as hostage. Donald Glas discovered that the Spaniards, nicely provisioned and recovered from fatigue, were planning to put to sea and leave the Macleans holding the bag. Whereupon Donald Glas found his way into the ship's magazine with a lighted candle, and blew her up. Some Spaniards were on shore leave, and Spanish features are still to be seen near-by the Bay of Tobermory. The others were killed. With them died the Spanish princess—if there ever were one—who was to have worn the crown as Queen of England.

The Bay of Tobermory was in 1588 in the estate of the Argyll family and every succeeding generation of the Argylls has kept its faith alive in the existence of the *Florescia* and its treasures. There is, in fact, no doubt of either. The *Florescia* lies barely ninety yards from the end of the pier at the town of Tobermory, in sixty feet of water, and enough has been recovered to make certain that she is the true *Florescia* and that her battered hulk did at one time

contain the treasure. In 1670 a bronze cannon, eleven and a half feet long and with a bore of seven and a half inches was recovered from the wreck, and now stands in the grounds of Inveraray Castle, one of the seats of the Argyll family. On its breech are to be seen decorations graven by Benvenuto Cellini when he was working for Francis the First of France at Fontainebleau. No one knows precisely how the gun passed into Spanish hands.

Those interested in treasure hunting will do well to read the story of the *Florencia*, which I have no space for here. I might add that two Earls of Argyll lost their heads on the block because of it, that James, Duke of York, was almost drowned in a salvaging expedition in 1682, and that the Argyll dignity was raised from an earldom to a dukedom because the family helped dethrone James the Second, who had tried to steal their wreck in Tobermory. In 1873 the *Florencia* was located through the employment of a primitive form of the modern diving suit, but the vessel had sunk deep in the mud. In 1905 a salvaging company was formed with Glasgow money, and a vast quantity of ancient arms, stone cannon-balls, and an old silver candelabra was brought up. Glasgow merchants are the canniest of all canny Scots. Yet this company dissipated its money because—this seems incredible—instead of using approved methods for recovery it depended on the guidance of a Scottish “dowser.” I have heard what kind of magic the dowser used, but it wasn’t good enough.

Perhaps a score of inadequately financed, unscien-

tific, more or less scatter-brained expeditions were formed to recover the Tobermory treasure. The latest and soundest of which I have knowledge was that organized by Lieutenant-Colonel Kenneth MacKenzie Foss, who wanted me to join him and make use of my submarine tube. It is likely that I should have done so, for he knew exactly what he was about, and had enough capital to cover the costs of a sanely conducted expedition. But Foss was ultimately severely injured and his company languished.

Prospects in the United States had again become promising, as they had had a habit of doing for years. Again the forward-looking officers of the United States Navy were trying, as one admiral said to me, "to break the hold that high finance had on the Navy Department's throat." The Lake Torpedo Boat Company had a very considerable surplus, and I had acquired quite a decent little fortune of my own through my European ventures. When I learned that there was a chance a sentiment had been aroused in Congress in favor of permitting the Navy's experts to have their own way in the buying of submarines, instead of allowing the congressional clique to continue in control, I determined to return home and try once more.

We never did get a chance to try out the submarine tube on the *Lutine's* treasures. I laid up the tube at Brightlingsea, and have been paying storage charges ever since.

How Business Men Make War

I DIDN'T know what I was getting into. Even if I had known, it is probable that I would have gone right along getting into it. It must be that I am rather bull-headed, for when properly qualified prophets have warned me that the future was full of trouble and pitfalls I have kept on going. It is also fairly certain that I was the least bit cocky at this time.

Sixteen years earlier I had started in business with no capital at all except the uncertain returns from the improved steering-gears and trawl-winders I installed with my own hands on the oyster-boats of the Chesapeake Bay. My opponent in building and selling submarines in the United States had been a well-financed company with a millionaire at its head. Mr. J. P. Holland, inventor of the Holland submarine, who had disposed of some portion of his interests to the Electric Boat Company, was not only a talented man, but he had had years of experience, while I was still a school-boy. He sold his *Plunger* to the United States Government in 1901, that being, so far as I know, the first military submarine to be bought by any government. The odds had been against me.

This is no place for mock modesty. My success had

been complete. The principle of level-keel submergence on which I had built my boats had been accepted by every navy in the world save that of my own country. I had been offered a contract by Russia to convert her surface fleet into an undersea navy. Austria and Italy were building boats on the Lake plan, and Germany was doing likewise, even if royalties were no longer being paid to me. Great Britain and France had had their fill of the diving type of submarines, and had come around to my way of thinking. And a company of the leading shipping men of England had backed my treasure-raising tube with the promise of fifty thousand pounds. The Lake Torpedo Boat Company had been a penniless orphan and now it had plenty of money. I was possessed of a nice little fortune. All in sixteen years.

In 1902 I had shown the way to the well-armed submarine service of to-day by putting a small gun on the *Protector's* turret. In 1904 I had drawn plans for big-gun mounting on the decks of the larger submarines which were to come.

As an amusement in my spare time I had applied for patents for three types of airships, and it is one of my regrets that I have been so busy that I did not follow them up, for I believe the principle will ultimately be adopted for air freight transportation. These plans called for a double balloon, with cigar-shaped hulls, with planes forward and aft. The ship would have been in fact an aërial catamaran and would have carried a large load at fair speed and with complete safety if helium were used for infla-

tion. Reversible propellers, variable-angle motors, landing wheels, and an anchoring device were among its features. One of these days this idea will come into common use. I say this because the flying-machine to-day is the most inefficient piece of machinery of which I have any knowledge. It is possible to make long flights at high speeds and carry heavy loads, of course, but at an excessive cost in energy and dollars. The first ten-horse-power machine of the Wright brothers was more efficient in its application of power than the best of to-day's planes. If it were possible to get 25 per cent of theoretic efficiency one hundred horse-power could lift one hundred tons. Three or four years ago I patented plans for a plane which is a combination of the features of a helicopter and an ordinary plane, and which met its laboratory tests successfully, but it is at present only in its experimental stage.

I have retold the tale to show that if I was cocky I had a reason for it.

When I learned that the Navy would be given authority by Congress to do its own submarine-buying I drew some new plans. I proposed to build the finest submarine ever constructed. My correspondents in America had made clear to me that the competition would be stiffer than ever but that I would have a large body of naval opinion on my side. In 1904-05 Lieutenant-Colonel Arthur Murray, then Commandant of Submarine Defense, had stated in his annual report that a boat of the Lake type was needed at the School for Submarine Defense for ex-

perimental work, for: "This is the only submarine boat, as far as it is known, that can be efficiently used in countermining electrically controlled mines."

In effect I offered this: "The Lake Company will build at its own expense a submarine which will be:

"Faster on the surface or under it than any boat now building, either in the United States or abroad.

"It will have a greater radius of action, more powerful armament, eight torpedo tubes, safety features by which men can escape when the boat is submerged, and facilities for planting mines and cutting cables.

"It will do more than the United States Government has ever asked that any submarine do."

Then I made my brag. "If it does not do all that is claimed for it the United States Government need never pay us a cent of money."

The *Seal* did all that I claimed for it and more. It was hastily conceived and hastily designed—I will tell the story presently—but I believe this super-submarine built twenty-seven years ago still holds the record for efficiency in speed, both in surface and submerged running, for horse-power per ton of displacement and armament surface. The day it was launched it was the best undersea boat that had ever been built or that had ever been proposed for our Navy.

In 1910 I was in Pola, Austria, and learned that a date had been set on which the United States would open bids for the construction of a submarine which would outperform any that had ever been built. I

called in Edward L. Peacock, our chief engineer, and told him what I proposed to do.

"I am going to get up plans for the largest and fastest submarine ever built and we have only two weeks in which to do it. Then I must sail for home to get there in time for the opening of the bids."

"O.K.," said Peacock.

We called in some of our draftsmen from the Arsenal and got at it in quarters we improvised in the hotel. We did not have time to check all the positions of weights with the displacements nor the speeds; I took a chance on going ahead on my own judgment. Peacock and I disagreed at times, notably on the new boat's efficiency in the use of torpedoes, either when submerged or on the surface.

Peacock finally said, "Go ahead, Simon. Have it your own way. It's a funny thing about some of your designs. According to established practice they should not work, but somehow the damned things always do."

I considered that a great compliment, for not only was Peacock a stickler for his point of view, but he was one of the most efficient engineers I have ever known. I had known Peacock ever since the early days when the first *Argonaut* was being built. He was then chief engineer and John McInnis was chief constructor and the pair would have arguments that lasted for hours. An engineer thinks of a ship's hull only as the vehicle which carries his beautiful machinery, and is apt to refer to the ship as "an old pot."

McInnis later became chief constructor and vice-president of the Bath Iron Works.

Peacock had been chief draftsman at Cramps, chief engineer at Harlan and Hollingsworth's, and chief engineer at the Columbian before he was twenty-five years old. He had designed and superintended the building of the engines for the first American torpedo boats, the *Rogers*, *Foote*, and *Winslow*, and had a part in other naval building. While with the Midvale Company, he coöperated in drawing the designs for the engines of E. J. Hill's great *Minnesota*, which up to that time were the largest marine engines ever built. He was with me about ten years and then returned to England to become chief engineer in charge of the designs for submarines in the Swan and Hunter plant. He was very fast at getting a new idea and putting it down on paper.

The *Seal's* tests were entirely successful and the Secretary of the Navy not only accepted her without question, but gave us contracts to build other similar boats. However, I did not draw an easy breath until the papers had been signed and delivery made, for I had had more than one experience with the odd things that happen when an inventor tries to buck moneyed men who are in competition. I have already told how the Navy Board refused to try out the *Protector* during the winter of 1903 because of the ice conditions in the harbor. Then before we sailed for Newport where we hoped to be given a test a deliberate effort was made to sink the *Protector* at her dock. One day I received an unsigned letter: "You

better put the *Protector* in a safer place. They're going to try to sink her."

By this time I had learned to be wary, and so I anchored her in shallow water and put the old *Argonaut* between her and the channel and hired a private policeman named Murphy to stand night watch. Murphy was a fine, upstanding Irishman who took no account of odds. Late that night a big sea-going tug steamed into the harbor and started head-on for the *Protector*, but rammed the *Argonaut* instead. Murphy saw the tug coming and jumped to cover behind the conning-tower with his revolver ready for action.

"If you come any further I'll blow your liver lights out," he yelled to the man at the wheel.

The steersman gave the tug the reverse bell and headed out into the Sound at full speed. The *Argonaut* was a sturdy craft and not a great deal of damage had been done, but it was evident that my anonymous friend had been well informed. Pinkerton's men learned that the tug had been chartered the previous day to a waterside captain who was well known as a tough, but there was nothing we could do about it. The *Protector* had not been hurt, and we could prove nothing.

I have already told how we were refused a trial of our *Number Ten* because a former United States Senator asked the then Secretary of the Navy to turn us down. The politician later told me that some of his friends did not want the Navy to know what the *Number Ten* could do, and so kept us from getting a

test. *Number Ten* was the best of her day, and was later sold to Russia. While I was in Europe on the trip that resulted in this sale my directors decided to build another boat of the *Protector* type, but to give the new boat a little more speed and a greater radius of action. The contract was given to the Newport News Ship-building Company. She was built during my absence, but when she was ready for trial I sent one of my operators home to put her through her paces before asking the Navy for a trial. Things happened for which I have never been given an explanation.

Why did my trial captain cable me at St. Petersburg that she "was the best ever" and "stiff as a church" when he knew better? Why was so much surplus weight added to her superstructure that her static stability was reduced? Why was it that, after I had come home and gotten her into a very satisfactory condition—having undone the sabotage that had been practised on her—some one opened three small valves in her hull and so admitted water which almost ruined her batteries? This delayed the trial until after the Navy Appropriations Bill had been passed, and then we found that a clause had been sneaked in which prevented the Navy's purchasing her, although on the records she was superior in many respects to any boat the Navy had at the time. I do not know the answers.

I do know that Pinkertons learned that one of our crew had been flashing a roll of bills the night the valves were opened and that this man then ran

away and has never been traced. On the continent of Europe such things might happen, but it is certain that in any of the countries with which I am acquainted an inquiry would have followed. If men were caught in an attempt to injure the national means of defense they would have been backed before a brick wall in front of a firing squad—pronto. This is probably the only country in the world where financiers or politicians are able to control the actions of the Army and Navy Departments through congressional decrees.

Does that sound like a fairly serious charge?

When I was first called to Washington to submit plans to the Navy Department for a submarine the chairman of the Senate Naval Committee advised me to repeat my story to the chairman of the House Naval Committee. Eugene Foss was the chairman, but in his absence Judge Dayton of West Virginia was in charge. After listening to me he said, "Mr. Lake, you have a hard road ahead of you. No matter how good your boat may be, there are other interests trying to force the Government to accept a different type.

"I think most members of Congress are honest men who want to do the right thing, but the trouble is that the few who do not are in a position to be continually pressing their colleagues to vote their way. Not many members know much about so highly specialized a thing as a submarine, and few Congressmen are able to vote on their own knowledge as to what the Navy should be permitted to have."

That has been changed entirely now, and the Navy decides for itself what it needs and asks Congress only for the money it should have. Yet it is not so many years since a tragedy revived some of my earlier angers.

In 1926 the *S-4* was running off Provincetown with only her periscope above water, when she was cut down by another vessel, and sank with all hands. Some of her forty men are known to have remained alive in their compartments for at least three days, and had she been fitted with escape compartments such as I had been advocating for years I believe that every living man could have been rescued within an hour after she sank. There is no secret about how these escape compartments work and the natural question is why they have not been used. The only reason I can think of is that the escape-compartment plan was patented by Simon Lake. Yet the patent expired years ago, and I had repeatedly offered the free use of it to the Navy Department long before. The only reply I ever received was that the Navy thought the escape compartment would take up space which could be better used for storage purposes. At the congressional hearing on the sinking of the *S-4* a former naval officer took the stand. He had been for years an official of a company that has built a number of submarines for the United States. He was asked: "Do you know of any means by which the men could have been rescued from the *S-4* when she sank?"

"No, sir."

But when I was put on the stand and asked the same question I said, "Yes, sir. We have built boats for foreign countries containing escape compartments and we built one into the *Seal*, which we sold the United States Government many years ago. If there had been such a compartment on the S-4 I believe all the men could have been saved."

The interrogating Senator turned to Commander Hoover, who represented the Navy Department at the hearing: "Do you know about this device?"

"Yes, sir," Hoover replied.

"Thank you, Mr. Lake," said the Senator, turning to me. "That is all, I think. There are no more questions."

When I left the room I was followed by Mrs. Jones, widow of Commander Jones, who died with the S-4.

"Why didn't you tell the real reason?" she asked.

"Because I could only answer the questions that were asked me."

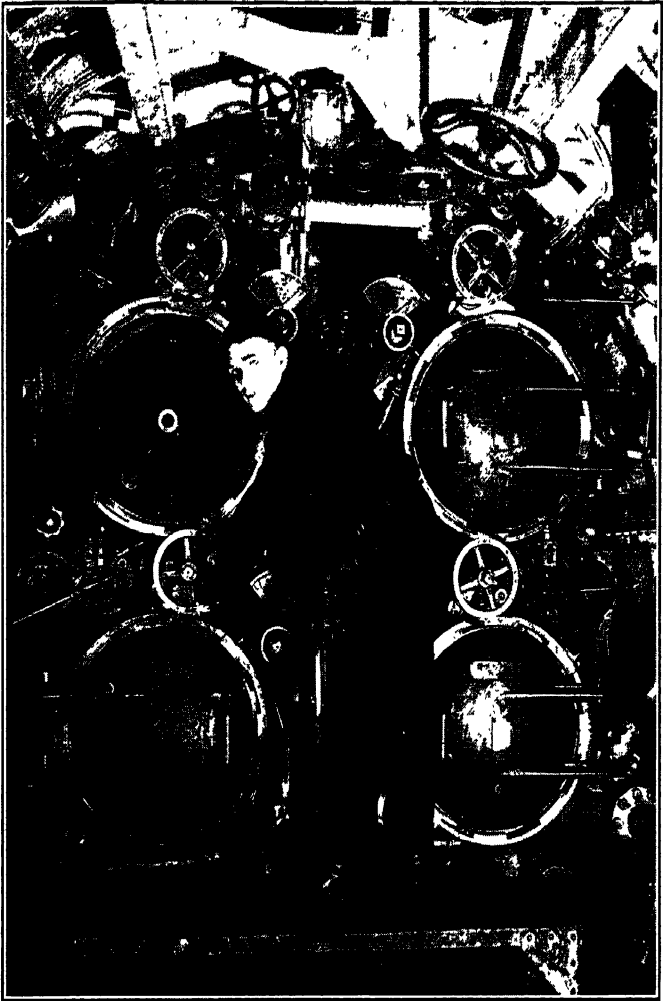
Even to this day I do not know why escape compartments have not been placed on every submarine. However, I understand that they are now being installed on some of the larger vessels. There is no reason why they should not be added to all the submarines now in commission. They are merely modifications of my grandfather's old powder-horn. But this is really a part of the story of the sinking of the S-48.

It was not all fun and games when we were building for the Government. The S-48 was almost lost,

her crew with her, because some smart aleck in the drafting-room had had an idea and acted on it without putting it up to the old man. I never refused to listen to a man who thought he had found something. I was glad to listen. If he really had something he got full credit and even if he had nothing he got credit for trying. It galled me when a draftsman made changes in my plans on his own responsibility.

The twenty-eight-inch submerging valves on the S-48 had been planned to open against the force of the water. The reason for this seems perfectly clear to me, for in this way the power of the inflowing current could be used to close the valves quickly, and that might be highly necessary. The submerging tanks had a capacity of one hundred and twenty-five tons of water, but if it happened that we only wanted fifty tons it might be highly inconvenient if the entire one hundred and twenty-five were forced on us. Also a jammed valve would close more easily if the weight of the current could be called on for aid. But the smart-aleck draftsman had reversed this plan, which had been tested and proven good on all of my earlier submarines. He made the intake valves open with the current.

No harm might have been done except for an accident. I would ultimately have discovered the change in the construction plans, or the weakness would have been found out in one of the test dives. But the noon whistle blew one day and the workman who had been screwing on a manhole cover in a dark compartment back of the Diesel engines dropped his



INTERIOR VIEW OF A MODERN SUBMARINE

This picture shows some of the mechanism and the torpedo tubes.

tools and hustled for his dinner bucket, leaving his job uncompleted. After lunch he was given another job and with the light-hearted inconsequence too often found in mechanics he forgot all about the half-open manhole.

The S-48 went to sea for a trial, accompanied by a launch. On the way the engines of the launch broke down and she hobbled back to Bridgeport. Arriving at the trial grounds the order was given to dive, the conning-tower hatch was closed, the rudder set, and the flood valves open. Down went the S-48 like an arrow. The water rushed from the ballast tanks through the manhole left open by the careless workman and flooded the engine-room so rapidly that the men had barely time enough to get forward and close the water-tight door between the engine and control rooms. The S-48 sank in seventy-five feet of water with her bow inclined slightly upward. No one on shore knew she had gone down. If they had known they would have had no idea where to search for her.

Fortunately a number of the crew were old-timers and kept their heads. The problem was to get her bow above water, for her stern portion was filled and open to the sea. All hands started to move weights as far aft as possible and the ballast tanks forward were blown out. Still the bow did not break water. Then one of the men thought of a sounding device I had installed, the design of which had been suggested by the old powder-horn that had led me to incorporate the first air-lock in the little *Argonaut Junior*.

In order to take soundings through her bottom I had set in a double-ended valve, six inches in diameter. When the lower end was closed the lead was dropped into the six-inch pipe which connected the two valves. The wire was passed through a hole in the upper valve, which had been properly stuffed against the intake of water, the lower valve was opened, and the lead dropped. In this way the lead could be raised and lowered at will. The *S-48* had a lot of lead ballast on board and by alternately opening and closing this sounding box the men were able to drop sufficient pig-lead into the water to bring her forward torpedo tubes clear of the surface. One by one the men escaped through them.

The *S-48* had completed all her tests except the so-called crash dive, in which we were allowed two and a half minutes to submerge from light surface condition running under engines to periscope depth, or about twenty-eight feet. To do this it was necessary to shut down our Diesel motors, transfer to electric motors, close all air-intake and exhaust valves and take in one hundred and twenty-five tons of water ballast. I had wanted to witness this crash dive but had been detained in New York, and the first I knew of the disaster was when the New York Navy Yard called me. "The *S-48* is down in seventy-five feet of water. The men have all been saved."

I left immediately for the scene, and found her prow out of water. We were able to close the torpedo tubes and keep her in a semibuoyant condition until Merritt and Chapman's large derrick arrived and

pulled her stern out of the mud. If the men had not kept their heads and dropped the pig-lead bit by bit through the sounding well—a long and difficult job on the sharply sloping deck—they would have perished and we might not have known even to-day what had become of the boat.

This experience led me to renew in even stronger form the recommendations I had previously made that escape compartments be built into every American submarine.

CHAPTER XXIII

United States Still Owes the Money

IF and when the United States gets into another war I will know more about how to deal with the Government. Yet that is not an exactly fair way of putting what I want to say. We speak of the Government—that overmastering, vague, ruthless machine which has command of our lives and fortunes—but we are really dealing with men. Tired men, cowardly men, courageous, patriotic, honest, confused, dishonest, foolish men. The sum of the men makes up the Government. One may be in a constant state of exasperation because of the injuries suffered from individuals, and still recognize that behind them is that thing we call the Government pushing on toward destiny.

I do not know precisely how much money the United States owes me and those associated with me. I may never get a penny of it. I feel that we have been most unfairly treated. Yet I have no hard feelings so far as any individual is concerned. A national madness is a part of war. The nation is no more sane and competent than a man is who has sustained a nervous shock and on top of that has taken to drink.

With the success of the new *Seal* submarine I felt the time had come when we would be able to do

some good business, either with the Government or with private parties. So I bought some land on the Housatonic River which was admirably adapted to ship-building purposes. When the United States entered the War some of the practical ship-builders in our organization asked me to come up to the Boston Customs House and talk over a plan to build some standard ships. I took Foster Hawkins with me, as he had been in charge of our ship repair yard, and had plans for two wooden schooners and almost-an-order for them from the Government.

"Come in with me," he said, "and we'll build them on a cost-plus-15-per-cent basis."

I was willing to do so, although I wanted to talk over Hawkins' plans and get more information. Out of this came a development that must seem incredible to the reader. I can hardly believe it myself, although I was one of the participants. Yet it was a thoroughly commonplace example of war-madness. A representative of the United States Shipping Board was present with us at this meeting at the Customs House.

"I like your plans," he said, speaking of those Hawkins had drawn for the two wooden schooners. "But you cannot get an order from the Government for only two ships. We need so many ships. Any shipyard that takes a government order must give government work the preference."

That was all right with us. We were honest and patriotic men, and we wanted to do what we could for our country. I will not say that we had no thought of the profits we might make, for that would not be

true, but we were first of all concerned to do our share as Americans. We said we would give government work preference at our yard.

"Then we will come to an understanding, here and now," said the Shipping Board's representative. "I have no order blank with me, but you can take this statement I am about to make as a definite contract.

"I want you to build six ways immediately. Then I want you to build ten wooden steamers of thirty-five hundred tons each.

"You will be paid on the cost-plus-10-per-cent basis.

"As soon as the plans for the ships are ready we can draw up specifications and sign a contract based on them, but you need not wait for that. You can go ahead and order your lumber and the other things you need, and an inspector representative of the Shipping Board will be sent to you in a few days."

It does not sound as though we had good sense to accept that verbal order as a contract, but that is just what we did. I had some loose money at the time, and with Kenneth and Archibald McNeill of Bridgeport I formed the Housatonic Ship-building Company and started in to build six sets of ways. The Shipping Board seemed to have accepted the verbal contract quite as sincerely and enthusiastically as we did. An inspector and accountant were sent to us, and they inspected and accounted, but we did not get any money, or was the written contract ever forthcoming. Then the man from Boston who had made the verbal contract with us retired from his position

with the Shipping Board and Eades Johnson was sent up from New Orleans to take his place.

"The lawyers are holding up your contract," he told me, time after time, in the offices he had opened in New York in which to handle the affairs of the New England district. "But it's all right."

"It isn't all right with me any longer," I told him on one of my numerous calls at his office. "We have spent about a quarter of a million dollars and we haven't the scratch of a pen to show that the Government will carry out this contract."

"Sit down," said Mr. Johnson, "and I'll call Washington right now."

Washington reported that the contract would be put in the mails right away, but it did not come. Then I sent Mr. Hawkins to Washington to find out what had gone wrong, and he brought back a contract for us to sign which was nothing like the verbal understanding. It provided for a flat profit of \$15,000 for each ship—or a total of \$150,000 for the ten—and that would not reimburse us for the money we had already spent.

"All right," said Washington, "tack on an addendum to the contract in which you make plain what you think you should be paid. We cannot pay you until we get some form of contract."

As a pay day was almost due we hastily wrote the required addendum and attached it to the contract. At Washington it was torn off and the contract sent back to us with red ink drawn through the line in which we were promised \$15,000 profit on each ship.

A note followed: "We have reduced the profit sum from \$15,000 to \$10,000. If this does not suit we can probably adjust our differences later."

We were hooked, and what could we do about it? There is little morality in war, plus that vast confusion and fatigue and uncertainty and lack of definite knowledge of which I have spoken. We built six of these wooden steamships and never got a penny for them from the Government. Yet the bill as rendered to the Government was little more than half what identical ships, built in government yards, cost the country, and our ships were far better built.

This is not the only unfortunate experience I had with the Government during the War. We had contracted to buy the Craig Ship-building Company, with a plant at Long Beach, California, as it seemed advisable to build some of our submarines and other ships on the west coast. We took several contracts from the Government but at last we were frightened out. No one knew what the next day might bring forth. Materials and wage costs might go skyshooting at any moment. The Government had made a rule that not less than five dollars a day be paid any shipyard worker, and some classes of labor, of course, were paid much more. We had taken our contracts on a fixed-price basis and the costs had risen so fast that no profit was left. When we were offered other government contracts we sent a man to see the leader of labor on the west coast.

"Can we make an agreement on wages which will

remain constant during the construction of the vessels which we have a chance to build?"

"No," said the labor boss. "The sky's the limit. We'll get all we can."

We had to refuse the Government business and eventually sold the plant back to the Craigs at a loss, all because labor racketeers were so blind and greedy as to think that they could make a permanent gain by robbing their employers. The Government wanted to stand well with labor and granted every demand that labor made. The wage-cost rose from 10 per cent in some classes to more than 100 per cent in others. This lay-down on the part of labor and selfish political action on the part of the Government was the first intimation I had had that we were following the same path that the Bolshevists and communists of Europe had marked out. We are still following it.

I was bred among mechanics who took a pride in their work. I am a good mechanic myself. The men I grew up with were willing to give a fair day's work for a fair day's pay. They did not spend their time listening to politicians who kept telling them they were abused and downtrodden and forgotten and cheated, nor to labor racketeers who talked as though the employers were the enemies of their employees. I detest these skrimshanking belly-achers with all my heart. The first I saw of this new spirit in labor was in the Russian Government's New Admiralty Works at St. Petersburg:

"Something's wrong somewhere," I said to myself. "We are supposed to be employing fifteen hundred

men, but if we are they are not doing their work. Let's see about it."

I made the men check in at the door each morning, and, sure enough, fifteen hundred reported for duty. But I could not count more than half that many on the jobs. One day I had the whistle sounded for quitting work, and I watched the yards from a little balcony at the machine-shop. Men crawled out from abandoned buildings and old lumber-piles like ants and hurried to check in with the timekeeper. Every one of the fifteen hundred reported himself at work. At the time I thought that was a truly Russian trick, but I was to discover that the American workman has tricks of his own.

One of the best hustlers I ever saw was an inspector for the Shipping Board attached to our Bridgeport shipyards. It was a treat to hear him call up some drowsy superintendent of transportation and ask why the hell the stuff that had been ordered had not been delivered. He had all the weight of the Government behind him, and he used it to get the action he wanted.

"I'd like to be your assistant here," he told me. "Won't you write a letter to Mr. Eades Johnson and ask permission to take me on?"

I did it. He was a good man. Eades Johnson would not let me have him, though. "When the Government gets a good man, and I know it, I'm going to try to hold him."

But my friend the inspector did not want to be held in the government service, but to get into private

business, where enterprise might offer higher profits even at the cost of the Government. Presently things began to go wrong. Other yards got the lumber and steel that should have been sent to us. Our accounting office suddenly slowed up. Unwarranted charges were made against our building superintendent. So many queer things happened that I put detectives on the job and in a little time he found that there was a conspiracy to take the yard away from me and turn it over to one of the inspector's friends on a 10-per-cent cost basis. That 10-per-cent profit had been originally promised me, but I did not get it. Maybe I did not take a hint when it came to me.

Some one in Washington was in the game and my pay-rolls were held up, so that more than once Ken McNeill and I had to go to the Bridgeport Trust Company and borrow the money. Charles M. Schwab was then in charge of the Emergency Fleet Corporation in Philadelphia and I went up to see him and told the story. He put it before a committee. One of the members of that committee had been friendly with the very men I distrusted.

"Pooh, pooh," he said. "Nonsense—where's the proof of this silly yarn?"

"I'll show the proof to Mr. Schwab but to no one else."

We walked into the next room. When we came out Mr. Schwab said to the committee, "Mr. Lake has shown me the proof of his assertions. Now I'm going to ask Mr. Lake what he wants done.

"Send a man up there to take charge and investi-

gate. If he finds what I know he will find I want him to fire all the crooks."

This was done. Then it was found that the man I had tried to get away from Eades Johnson and make my own assistant had been at the bottom of it all. He had not been long out of the Michigan penitentiary and was wanted in California for murder. The last I heard of him he was in jail for swindling a widow. But I will repeat that he was one of the finest hustlers I've ever known.

CHAPTER XXIV

The First Cargo-Carrying Submarine

IT was Brother Jasper who admitted that "the world do move," but an impatient inventor is apt to think that it moves slowly. No doubt this is as it should be. If every man with a new idea were to be given a prompt hearing we would be snowed under with cockeyed schemes. But at the outbreak of the World War it seemed to me that the submarine had made good. So far as ruling naval cliques and the general public were concerned it was still the pet child of crazy inventors and nothing more.

In England, Admiral Sir Percy Scott had warned his people that the submarine would ultimately drive the battleship from the sea. He was a stout man and a born fighter, and he had all the fighting he wanted after that. Nothing was too harsh to be said of him by the other admirals who were asked to contemplate abandoning their broad quarter-decks for the oily cubicles of a submarine. The press ridiculed him: France was doing no more than toy with the under-sea boats, Italy had had bad luck, and even in Germany Admiral von Tirpitz had not fully grasped the importance of the new weapon. In the United States we did not realize that the German submarines might become murderous raiders of commerce.

I know quite well that thousands of sensational columns were printed in the newspapers about the potentialities of the submarine. For all that, I insist that both writers and readers had their tongues in their cheeks. The stories offered another pleasant titillation of the nerves for those who had acquired a taste for horrors. I agonized desperately. I did not feel then—I do not feel now—the slightest responsibility for Germany's use of the submarine, but there is no blinking the fact that her boats had been built on my plans. They submerged on level keels and they carried torpedoes and guns. Diving boats of the earlier models—the boats that leaped into the air like porpoises, and were almost uncontrollable in their power dives—would have been targets instead of furies. When the Germans warned the English not to send the *Lusitania* out of the harbor of New York I was alarmed.

"The Germans can sink the *Lusitania* if they wish to do so," I warned. "I believe they will."

No one cared what I said.

The British Government defied the submarines. The United States Government did not take the threat seriously. The American newspapers were frankly incredulous. The editors had not yet grasped the idea that war consists almost entirely of killing and destruction. The great *Lusitania* seemed to the average sea-goer an impregnable fortress by comparison with the rusty little craft that slipped along under the surface. The list of passengers on the *Lusitania* on her last voyage is proof enough of this

public attitude. We are a cheerful and careless people, and we refused to believe what we did not want to believe.

I spent over seven thousand dollars on advertisements before the *Lusitania* sailed, warning the United States that I believed the Germans intended to do what they threatened to do, and restating my belief that they would do it. I had money then, more money than I had ever had, and I was glad to spend it. It was money thrown away.

The net result of the sinking of the *Lusitania*, as it then seemed to me, was an outbreak of indignation against the Germans, and a very slightly extended realization of the submarine's power. It was not until Lieutenant Weddington in two hours sank the English cruisers, *Aboukir*, *Cressy*, and *Hogue*, that the situation was fully comprehended by naval men. They had been sneering at the submarine so long that they had accepted a sneer as an evidence that battleships could not be harmed. The world public had long since understood that the submarine could be an enormously destructive force against merchantmen.

What neither the public nor the naval experts nor the ship-building trade have ever understood is that the submarine may be as useful as a cargo-carrier as it is as a ship of war.

Even the exploit of the *Deutschland* did not convince them. Public and naval experts and ship-builders have almost forgotten the *Deutschland*. Only the lesson she taught has not been revoked.

I can honestly say that I am the daddy of the *Deutschland*. Paul Hilken in 1916 gave me my papers of paternity.

Hilken was then the agent for the North German Lloyd Line in Baltimore. The *Deutschland* had just reached American shores on the first of her two cargo-carrying voyages. It was in fact the first voyage of a cargo-carrying submarine in the history of the world. The English had been thrown into a frenzy by her success, for it indicated that a break in the blockade of the German ports might be possible. American public opinion was turning against Germany, partly because of her ruthless destruction of unarmed ships and, of course, very largely because of the English control of most sources of news and propaganda. Americans, however, were tremendously excited by the exploit of the *Deutschland* under Captain Koenig. We are a sporting people at heart. The newspapers had carried the story that the *Deutschland* was in Chesapeake Bay on her way to the North German Lloyd docks at Baltimore. I telephoned my attorney and asked him to go with me to Baltimore.

"I want to take a look at the *Deutschland*," I said. "Maybe I can tie her up on a libel."

We boarded a motor-boat and met the submarine as she made her way slowly up the Patapsco River. The moment I noted her buoyant superstructure I said to the lawyer, "That's an infringement on my patents. I can prove it. Let's seize her."

I did not propose this action as a partisan of the Allies, but as a business man who had been given

an elaborate trimming by the Germans. They had spied on my actions in Germany, read my letters, stolen my plans, and finally refused to pay me royalty because I had not been financially able to take out letters patent in Germany. I know quite well that this refusal to pay royalties was within the letter of the law, but I still insist that perfectly honorable men would not have given me such shabby treatment. I was helpless against them in Germany, of course, but it seemed to me that I should be able to seize the *Deutschland* in American waters on the ground that she was a pirate of my patents.

"I'll look up the statutes," said my lawyer. "You've put a question to me I cannot answer off hand."

"While you're at work on the books I'll call on Captain Koenig. I want to congratulate him on his success."

The *Deutschland* was berthed between a large steamship and the dock, and a fence had been built to keep visitors away. Plenty of volunteers could have been found in those days to plant a bomb in her. A cordon of police surrounded a roped-off area into which no one was allowed to enter without a pass. On the water side other police kept up a constant watch. The officer in command of these arrangements was hard-boiled, as was quite right, and it took time and a heavy argument before I could persuade him to send my card in to the North German Lloyd's offices. Word came at once that I was to come in, and I was greeted by Captain Hinsch, who was in com-



SIMON LAKE WITH CAPTAIN KOENIG, COMMANDER OF
THE DEUTSCHLAND

Simon Lake is second from the left; Captain Koenig third from the left. This historic picture was taken shortly after the arrival of the *Deutschland* on her first trip to this country.

mand of the steamer berthed alongside the undersea boat.

"But yes," said Hinsch, "of course you must see Koenig. He will be so pleased."

Koenig was surrounded by a congratulating group of important German-Americans. I told him that I was greatly pleased by his success. It had long been a contention of mine that submarines could be effectually used as cargo-carriers, and he had demonstrated under the most threatening circumstances possible that I was right.

"It was easy," said Koenig modestly. "Even on the surface we lie so low that surface ships can hardly see us, and when we found ourselves too near enemies for comfort we just submerged and lay quiet until they had moved on. We were only compelled to do eighty miles under water."

"I have another purpose in coming to see you," I said. "I know that the *Deutschland* has been built in evasion of my patents. If I can prove this is so I propose to attach her."

At this point Paul Hilken spoke up: "You wouldn't do that. She's your baby."

Then he told the story. During my residence in Germany I had been the guest of honor at a dinner given by the North German Lloyd at Bremerhaven, and had spoken on the future of the submarine. No one thought of war at that time, except as every intelligent man in Europe knew that sooner or later war was inevitable. I made a long talk on the use of the submarine in cargo-carrying, stressing its invisi-

bility, its inaudibility under proper direction, and the fact that its cargo-carrying capacity is equal to that of surface ships, ton for ton.

"Do you remember Lohman?" Hilken asked me. "He sat beside you at that dinner."

Lohman was then a director of the North German Lloyd, and he had been very courteous in showing me through the ship-building plant. We had a conversation of several hours in which we discussed the various phases of submarine construction. Later Lohman became president of the company.

"When the war broke out," said Hilken, "I got a letter from Lohman: 'Get hold of Lake and offer him whatever is necessary to get him to come to Germany and direct the building of a fleet of cargo-submarines.'"

I was then hard at work for the Government and Hilken did not venture to open a conversation with me. He did not know where my sympathies might lie as between the Allies and Germany, and the plan to build cargo-submarines was a closely guarded secret. Hilken was by profession a naval architect. In the United States there have never been many military secrets, so in one way and another he was able to get a lot of information about my plans for cargo-submarines. He took it to Germany with him, where it was added to the plans I had previously drawn and turned over to the Germans. As a result, the *Deutschland* and her sister ship, the *Bremen*, were built.

"You see," Hilken beamed at me, "you would do nothing to injure your own child."

"If the *Deutschland* were a war-ship I'd darned well try to do something," I replied. "But my sympathies are with the women and children who are made to suffer by reason of the blockade England is carrying on. And what's more, Hilken, we're still a neutral country, and my American blood boils when I read that England is commandeering or sinking our ships engaged in a peaceful trade with a friendly nation."

"Would you be willing to help Germany in her trade relations?"

"Germany or any other country, so long as the United States is friendly."

Hilken turned to his companions at table and spoke in German. One of them, I noticed, seemed to have a great deal of authority. The others deferred to him with every evidence of humility.

Hilken turned to me again. "I am authorized to make you a proposition. If you will organize an American company to build submarines with cargo-carrying capacity of five thousand tons, we will finance it." The *Deutschland* carried only about six hundred tons.

"I'll agree in principle," I replied, "subject to further consideration and negotiation."

"It's a bargain. We will cable Germany at once for authority to go ahead along these lines."

The next three days were spent in discussion, although our time was somewhat broken in on by Baltimore's hospitable hosts and her indomitable re-

porters, who lionized Captain Koenig until he would have run and hid if there had been any place to run to. He was a modest and self-effacing gentleman, who did not seem to realize that he had made one of history's not-to-be-forgotten voyages. I was made a not altogether unwilling participant in this, for I admired Koenig sincerely. When Dan Willard, president of the Baltimore and Ohio Railroad, asked me to stand with Koenig for a photograph on the site of the building from which Morse sent his first telegraphic message to Washington, and near-by the dock at which my first *Argonaut* was launched, I was delighted.

Koenig slipped through the blockade near the mouth of Chesapeake Bay, which the Allies had established within about forty yards of the three-mile limit. He later returned to the United States with another cargo, and got safely home again. In the meantime, my plans for building the cargo-carrying fleet were progressing nicely, and on September 22, 1916, Paul Hilken wrote me at New London that the *Bremen* was due in a few days, and that she would bring with her a credit of ten million dollars, with which we could start operations. The *Bremen* never arrived. There has never been an authenticated explanation of her fate. She may have fallen victim to the allied fleet or struck a mine or been blown up by a depth bomb. It is quite as probable that her bones rest on the sea floor for reasons which had their origin inside her skin. I have never seen the plans on which the *Bremen* was built. It may be that

the engineers made a mistake during the process of working over my plans. The building may have been scamped or hurried. There may have been a careless man aboard, or a fool. A careless man is a fool, of course, whether he is in a submarine or a subway.

But the loss of the *Bremen* put an end to our plans for building a cargo-carrying fleet of submarines. American sympathies were now definitely veering in favor of the Allies. Our injuries at the hands of Great Britain were forgotten because of the greater injuries we suffered at Germany's hands. I could not have gone on with the plans we had made even if I had been disposed to do so for it was becoming apparent that the United States was moving toward a declaration of war. I got my affairs in hand, for it seemed to me that the United States would not only want military submarines—that was to be taken for granted—but that the value of the cargo-carrying submarine had been magnificently demonstrated and it was this type in which I have always been interested. I took the matter up with the Navy Department.

"It is no part of our business to build cargo-carriers," I was told. "We are only interested in war-ships."

I went to the United States Shipping Board.

"That's fine," the spokesman for the Board told me. "We'll go into this. We think we'll need you."

British Sentimentality Pays Dividends

THE old-style knee-and-thumb fighters used to have a bar-room battle-cry:

*Wild and woolly hard to curry,
Never was tickled below the knees.*

That defines precisely the spirit in which the United States went into the War. Europeans must have looked on us as a nation of idiots. Operating on that theory they did some things to us which seem to prove it. We loaned millions to nations that could not have borrowed a dime at a bank if they had put up their crown jewels. We got into the most absurd situations. We talked of liberty and we actually fed our enemies. We closed our eyes to the fact that we had been robbed by our own allies while we were trying to get them out of the hole they had dug themselves, and then gave them millions of dollars for which they were not even grateful. The funny thing is that, silly as we unquestionably were, we were right all the time. Our tactics were deplorable but our strategy was superb. If we had fought our part of the war on the cautious, nickel-nursing, double-crossing lines followed by the Allies we would all have been licked.

We won the war, and by that I mean that the Allies and Associated Powers won it, because after the United States got in the Americans stopped counting costs either in money or men, so long as they could save time and gain ground.

Our folly, and tactically we played the fool, is easy enough to understand. Compared to the Europeans we were a nation of rich young men, full of beans, spoiling for a fight or a frolic, and confident that Dad could get us out of any trouble we got into. In the one hundred and fifty years of our history we had looted a continent stuffed with treasures. We knew ourselves to be safe from invasion—for the windy nonsense the English talked of danger to us in the event of a German victory only impressed a weak-minded few—we could not be starved, and we were almost unbearably chesty about our money and money and our brains and our inventions. The war had been so far away from us in miles and sentiment that we did not know what it all meant. No European nation could have lasted six weeks the way we played it.

Yet we were right all the time, strategically. In the matter of tactics we had the brains of geese.

My first understanding that we were out to win the war by spending money, siphoned through the usual business channels, came to me through my friend Hart O. Berg. He had been my agent in Russia and on the continent of Europe. It was Berg who launched the Wright brothers on their successful career in France, he had the confidence of the

French Government, and he knew what was the air situation in Europe. That was, to brief it, a combat between individual men and planes under conditions that changed almost hourly. To-day's best plane might be a second-rater to-morrow. The Europeans knew better than to go in for mass production of planes. Their aim, on both sides, was to make to-day a plane that was a little faster and more maneuverable than the enemy's best. In a sense they made only one plane at a time. That is not literally true, but it is illustratively accurate. Soon after we entered the war Berg came to the United States.

"I have a chance to do something for my country," he told me. "The French have given me the plans for their best plane, which we can use to start our fleet. As fast as they make better planes they will send me the plans."

In a few days he came in to see me again. He had taken his hopes and his plans to Washington.

"I'm sailing for France," he said. "At first the authorities would not listen to me. Then they insulted me. 'We're going to build some real planes,' they said. 'Hundreds of thousands of them.' They do not know one little thing about how this war is being fought, Simon."

I will not rehearse the follies of that silly season, except as they affect my own story. The German submarines were knocking down allied shipping until England really feared starvation. There seemed to be no way of checking them. It was then we began to build green-pine ships that could hardly have held

together through a storm, and concrete horse-troughs with engines in them. Some unlimited ass coined the slogan: "We'll build ships faster than the Germans can sink them," and Americans thought it showed a wonderful spirit.

Yet the Americans were right, foolish as they were, for that spirit won the war. In the end we overwhelmed the Germans by sheer weight and speed. When the Navy Department refused to listen to my suggestion that cargo-carrying submarines be built in which supplies could be carried in relative safety to England and France, I went to the United States Shipping Board and at the outset was well received. Denman was then chairman.

"Let's have in the experts," he said. "I like your idea, but let's see if the experts like it."

We spent almost an entire night with the experts and convinced them that cargo-carrying submarines were feasible. It is not possible, of course, to compare a military submarine with a cargo-carrier. The purpose and lines and equipment are different. But any one must see that a ship rides on its submerged body. All that portion of the ship which is above the water-line does nothing to keep the ship afloat. In passenger ships wide decks and airy cabins are demanded and ships of war must have height above water for the gun platforms and spacious quarters for the men, munitions, and the like, not to speak of handsome cabins for the captains. A submarine could never be comfortable for passenger carrying by comparison to the *Queen Marys* and *Normandies*,

but, weight for weight, a submarine cargo-carrier can be shown to be safer in operation and more economical to run in peace-time than the ordinary surface ship.

"Get ready to build, Mr. Lake," said Denman.

I had taken with me to Washington a model of a submarine cargo-carrier capable of carrying 7,500 tons of cargo at a total load displacement of 11,500 tons, or about 65 per cent of her displacement. In comparison with a surface ship a cargo-carrying submarine can be built which will carry a greater percentage of cargo on an equivalent surface displacement of ship, machinery, and contents. Of course, when the submarine is submerged her displacement is temporarily augmented by the water ballast taken in, but it seems to me this is better than to lose the ship. But this is becoming too technical, although I may suggest that naval architects examine these statements instead of merely closing their eyes and ears as most of them do.

"We'll build one hundred," said Denman.

I went out on a round-up of mills and boiler-shops and gas-tank builders, prefatory to beginning the work of building. It is possible to standardize everything when operating on such a huge scale. The parts needed can be made at a score of places and centered at a shipyard to be put together. That is a rough statement of the proposed plan, of course, but it is sufficient, for before I was ready to report to Denman there had been a split and the organization was divided into the United States Shipping Board

and the Emergency Fleet Corporation. General Goethals was at the head of the Emergency Fleet Corporation.

"You'll have to see him," said Denman. "Sell him your idea. The Fleet Corporation will be in charge of ship-building."

Goethals was stand-offish at first.

"But come in to-night," he said at last. "I'll go over your plans with the chief engineer."

By dawn Goethals and the chief engineer were seeing eye-to-eye with me.

"But this is an experiment." General Goethals was right in being cautious. "We'll not start off with one hundred cargo-carriers—we'll build six instead."

That suited me. Some of the cloud effects were fading out, but, after all, six cargo-carriers were more than the world had ever had, and they would be my creation. I began the job under a heavy head of steam. I was only fifty-one years old, I had an abundance of energy, and this was really the first time that a government department had shown a disposition to coöperate heartily with me. I had my plans and prices ready to submit and had recast my partially completed preliminary report, when the Shipping Board and the Emergency Fleet Corporation parted company and Denman and Goethals both resigned. My proposition went into the hands of a body the deadliness of which might be guessed at from its name: "A Committee on Standard Ship Construction."

On August 8, 1917, I received a letter from this

board: "We do not consider it advisable to construct ships of this type at this time."

The committee has always been anonymous. I never learned the names of its members and the letter was signed, "The Secretary of the Committee." I am frankly more than a little savage about this, for I am as sure now, after twenty years more of dealing with submarines, as I was then, that the cargo-carrier offered a way out of the very dangerous hole in which the Allies and ourselves had been dropped by the German attack. It seemed to me then, and it still seems to me, that the refusal of the committee to adopt my idea was due primarily to that dull resistance to anything new the inventor is forever encountering. The man who invented a ladder must have been stared down by his associates, and the first man to think of a wheel probably starved in a gutter. My anger at this committee mounts higher when I recall that it was this body of undoubtedly excellent men which embarked on the green-wood and concrete-ship campaign a little later.

But at the time I accepted the disappointment as I had accepted others in the past. The way of a man with a maid is not half so marvelous as the way of a government committee with anything that pertains to submarines. I think that in 1917 our committeemen still thought of a submarine as either impossible or else the production of black magic. I dismissed my hopes and set about organizing the Housatonic Ship-building Company, of which I have told elsewhere.

One of the funny incidents of this period came out of a conversation with Senator Ben Tillman.

"Ben," I said to him one day, "every man who can read a blue-print is making some invention or other at this time and some of them are certain to be valuable. Don't you think the issuance of patents should be suspended? If papers are filed, you know, some one will get at them and in the end the enemy may profit."

"Good idea, Lake. I'll see to it."

I patted myself on the back. I might not have won the Government over to my idea about submarine cargo-carriers, but this little idea about protecting the inventive brains of the country from being rifled by the enemy might be even more profitable in the long run. Then a few days later I received an imperative note from the Department of Justice, and I could feel my red hair beginning to prickle on my neck. The Department spoke, as all government departments always do speak to the citizen, in the most dictatorial and imperative terms:

"The patents you have applied for will not be issued.

"Further, you are hereby forbidden to reveal any information under penalty of a fine which may be \$10,000 and imprisonment."

I got my breath back after a time and reflected that this note was wholly impersonal. All the thousands of men who had been inventing things in the hope of aiding their country had been similarly rapped on the wrist and most of them would get mad

just as I had done and then get back to work just as I would do. For the remainder of the war I devoted a good deal of my time to considering underwater listening and protective devices and other things useful to my submersible pets. Some of the things I worked out then could not be used. I have never patented them because a patent would inevitably fall into the hands of the representatives of other countries and I believe the time will come when they will be extremely valuable. In the meantime I am the only one who has the secrets.

It was while I was so engaged that I received an offer from my old friend Charles R. Flint for which no explanation has ever been made. He asked me to come and see him in New York:

"Simon," he asked, "are you free to sign a contract?"

"What kind of a contract?"

"I cannot tell you. But you know you can rely on me. I am empowered to offer you two and a half million dollars cash and twenty-five thousand dollars a year for a period of fifteen years. You will place yourself at the complete disposition of myself and my associates."

That was a little too much for me. There was too much money, too much secrecy, too much uncertainty where I would head in and who would do the handling. I refused to give Flint a reply off hand for the very good reason that I was somewhat frightened and more than a little puzzled, and called on Secretary of the Navy Josephus Daniels with my tale.

"Don't sign it, Simon," said he. "I'm puzzled by it, too, for there is something behind it that is not being shown. And we are at war and we need you. Let this queer thing alone."

It has never bothered me to think that two and a half million dollars slipped through my fingers nor that for fifteen years I might have drawn the very pleasing sum of twenty-five thousand dollars each year. But I am curious. I wish I could find out what Flint was up to and who were his associates. I have made many wild guesses but not one that seemed even remotely plausible and Flint would never tell, up to the day of his death. He was a queer, hard man, but he was an interesting associate and a good friend. He always kept his word and he was generous and kind in his personal relations, but I have no difficulty in imagining that there might be occasions when he would be pitiless and even cruel.

When the war ended I thought the submarine had been established as a marine weapon. Not one allied soldier had landed on German shores and this was at least in part due to the allied fear of the submarine. It had proven its value as a raider of commerce and the great fleets of battleships had been shown up as mere coveys of steel hulks. Every naval officer knows in his heart, no matter what he may say, that no battleship could cross the seas if the enemy had submarines. These great machines actually detract from the defensive strength of the nation that possesses them, for they not only immobilize men and are mere swamps into which

munitions sink, but they take other men from the fighting forces to protect them.

All these things were true then and they are quite as true to-day. It seemed evident to me then, just as it seems evident now, that the submarine is not only the most effective arm at sea, but that by its efficiency it becomes a great instrument for peace. But I did not reckon with England.

England lives on its ocean freight-carrying business. If England could abolish the submarine and continue to hold the seas with her fleet of battle-ships and cruisers her position as Mistress of the Seas would continue to be unassailable. The English need clicked with the glary-eyed idealism of the Americans. We were tired of war, sick of the sound of the words, weary of the smell of blood, disgusted with the greed and barbarism of both sides, and anxious to get back to the pleasant shades of sentiment and the unrealistic talk of brotherly love and universal democracy. President Harding called his Peace Conference.

It was the most complete triumph of romance over the harder facts of life I have ever known. But the romance was confined to the Americans. We eat it up—professors, old ladies, sororities, editors, Kiwanis Clubs, Congressmen. There should never be any more war, every nation should have a cote filled with peace doves, swords should be hammered into plowshares, and mercy and loving-kindness should cover the earth. We completely forgot that we were planning all these good things for the human race, which

has not changed materially within the range of recorded history. The American thought was to do a sweet thing on a great scale. The English idea was to get rid of the submarine.

I have the warmest admiration for the British diplomats. They can deal in the loftiest sentiments in the most moving terms, but they never tear up a mortgage. They honestly believe that what is best for Great Britain is best for the world, and I will not argue this point, for it may be true. I could only wish that our diplomats might be inspired along the same lines for I likewise feel that what is bad for the United States will prove to be very bad for the world. But in this matter of submarines I felt that England's statesmen had not taken a really broad view. They still flinched when they thought of what the German submersibles had done, and they had so suffered during the war that they were still moved by their hearts rather than their heads. If they had reasoned out the problem they would see that in the next great war England's provisioning will depend on cargo-carrying submersibles. For in the next great war surface ships will simply disappear. At least that is my belief. The safety of England's shores will rest not on her battleships and cruisers but on her undersea boats.

Therefore I addressed a letter to Lord Balfour, the head of the British delegation to the Peace Conference, and will quote a pertinent paragraph or two:

I believe that I understand and sympathize with your view that if the submarine could be eliminated alto-

gether it would be to England's advantage.... If the submarine could be eliminated entirely and Mr. Hughes's proposal carried out in other respects it would be a wonderful feather in the cap of British diplomacy. As I have great respect for the English ability to "put things over" by their experienced diplomats and as I can see their handiwork appearing in the numerous editorials in certain of our important journals that are said to be under English influence, I appeal to you rather than to our own representatives in the Conference.

I hope that I may succeed in convincing you that it is not to England's advantage to do away with the submarine, even if the immediate effect would be, if the program were to be carried out in other respects, to give England an immediate advantage over the United States. As I understand the Hughes proposal regarding capital ships, England's policy of having the largest navy in the world would be reestablished for the next few years at least.

I recapitulated the arguments in favor of the submarine:

An analysis of the facts would prove that because of the introduction of the submarine many fewer lives were lost than would have been lost if the surface navies had met and fought as they were designed to do. The submarine undoubtedly prevented the bombardment of coast cities, and most of the crews of the merchantmen captured and destroyed were permitted to escape....

This letter was sent also to all the other diplomats attending the Peace Conference. Most of them replied courteously. Some of them admitted the weight of my arguments. Lord Balfour did not reply.

So far as influencing the direction of affairs I might

have saved my ink. I might also have reflected that man cannot by statute and agreement change the course of events. Gunpowder was denounced by the men in armor but the world accepted it. Sailors stormed about steam-power. It has been proven by the most convincing argument that iron ships cannot sail the sea. The story of the years which have followed the Peace Conference shows that submarines have come to stay. The doubter is advised to find the facts for himself in any newspaper file of to-day.

CHAPTER XXVI

Society for the Protection of Inventors

BALFOUR and England did not wholly have their way. The submarine was not barred, for the smaller nations refused to have such a cheap and efficient means of defense taken from them. But England and Balfour and the raging sentimentalists with whom we are afflicted in America did persuade the United States to scrap a large part of its fleet and to stop making appropriations for the building of submarines. That finished the Lake Torpedo Boat Company.

We had shown the world how to build submarines. After the European countries had adopted the Lake designs we had been able to break through the barriers set up by high finance and our own country accepted the boats we had been trying to press on it for years. We were in a position to build submarines for commercial purposes and ultimately such submarines will be built. We had spent more than one million dollars in our experiments. At times we had employed over five thousand men at our Bridgeport plant, more than two thousand men at our Housatonic yards, and over fifteen hundred at Long Beach, California. We had a plant investment of more than two and a half million dollars at Bridge-

port, we did not owe a penny, and we had nine hundred thousand dollars cash in bank, not to speak of a considerable sum the Government owed us. But no orders were in sight, and it was costing us fifty thousand dollars a year to keep up our Bridgeport plant, exclusive of the inevitable depreciation of the physical properties. So we decided to close down, pay off part of our first preferred stock, and quit. I wanted our directors to start building commercial submarines, but Lebbeus Miller and his son Herbert S. Miller were dead and no one else cared to join me.

No hard feelings. I've had a good time.

During the seven years ending in 1923, when our submarine building came to an end, I had been engaged in many things. I barely missed making an accidental fortune in California. Fred B. Whitney, of Waukegan, Illinois, had been our attorney for years, and during the period in which we were operating the Long Beach plant we occasionally dined with William C. Foley, manager of the plant, and one of the most competent hull men in the country. He had a cottage on the beach overlooking the harbor. A high, roundish hill furnished a pleasant background. Whitney knew of my liking for high places, and one evening he said, "Simon, I know you like to live on a hill from which you can overlook the sea. I've an option on the top of that hill yonder. Why don't you let me take it up and build a bungalow? You would enjoy life up there."

"But I don't want to live in California. The coun-

try is dry as a bone, there has been no rain for months, there is nothing green to rest the eye. I want to get back to Connecticut as soon as I can and look at the grass and trees."

That option I refused was for a part of the top of Signal Hill. More oil has been taken out from under the hill than from any other territory of the same area in the world. I have never regretted missing that money, but I think Whitney was displeased, and I am sure he was disgusted later on when I refused to retire merely because I had a fortune.

During this period I was coaxed into an experiment with applied efficiency that in the end turned fairly sour. My technical staff was an excellent one, and I had been able to shift my attention from the operating details to some extent. When I was in direct control of the plant I had managed to get along nicely with two or three bookkeepers. I knew my men and I was "Simon" to the old-timers. When we wanted a nut or a bolt we went to the bin and got it. My efficiency experts put in a crew of specialists who got in every one's way. The paper work was complicated enough for an army. A workman hunting a bolt had to sign a requisition and give receipts and waste enough time to pay for it twenty times over. I do not think I have patience enough to monkey around with efficiency systems. Give me good men and a good plant and I'll be satisfied.

I was more or less on the loose. Plenty of money, lots of time, a good business with excellent pros-

pects, and ideas sparking every day. As long as I was at work I was happy. It was only when I tried to enjoy myself that I was miserable.

One of the things that I got into was the National Institute of Inventors. The idea was a good one. It had been in my mind for years. No men in the world need protection, guidance, moral, and, at times, financial support more than do inventors. But the way in which the idea was worked out was somewhere between ludicrous and infuriating. It was a further evidence, if any were needed, that inventors should be provided with guards and nurses.

I am speaking with very deep earnestness in this. All my life I have been an inventor. I have learned to accept the fact that a new idea that in any way departs from the routine of life will be repelled by the public. This is no doubt a phase of the protective machinery of society. The too ready acceptance of new things would make society even more light-minded and hair-brained than it now is. But a man with a new idea should not be regarded as a public enemy. He should be granted a hearing, and if his invention is worth-while he should be protected in its possession and helped in its development.

As matters stand to-day a greenhorn inventor may find himself working on some scheme that has been public property for half a century. If he has really struck into new territory he may fall into the hands of a shyster lawyer, who thinks only of the money he can wring out of the poor devil. If he escapes these early perils a promoter may get hold of him

and either waste his money or steal his invention. If he dodges the promoter and tries to interest possible backers on his own, he will be turned back by cigarette-yellowed office-boys and frozen by blonde transparencies. I knew the troubles of the inventors, and as one of the guild I hoped to lessen them.

During the World War, Secretary of the Navy Daniels had moved toward the control of inventions and the protection of inventors. He appointed a civilian board to look into the merit of inventions offered the country, but this was of necessity a war-time measure only. I hoped to see this expanded into a permanent peace-time structure, entirely apart from the armed services. My own experiences, in fact, led me to agree with Secretary Daniels in his estimate of the war and army leaders. He said to me once:

“One of the troubles is that we send young men to the military establishments maintained by the Government to gain knowledge qualifying them to become officers. When they come out of such establishments they think the knowledge they have gained is all the knowledge there is, and that anything they do not know is not knowledge.”

In 1919, then, with the war back of us and most of us still filled with the fervor created by war, I was ready to go on with my plan for a Society of Inventors. But my hands and my heart were full of other things, and it was only now and then in talk with my own kind that the plan came up. It was

at this time that I was invited to attend a dinner given at the Hotel Astor, for the purpose of discussing the formation of such a society. Among the guests at the dinner were some of the most widely known men in the field. A temporary organization was formed. Some of us put in enough money to cover the initial expenses of rent and printing and stenography. A man who had been running a little magazine devoted to invention was made temporary chairman. He had an abundance of energy and plenty of smart ideas, and presently he had a society on paper that looked like the realization of our dreams.

I had money then, plenty of it, and this scheme had been close to my heart for many years. I sent in a check for \$500 as I remember—possibly only \$250—with the assurance that more would be forthcoming. The plan was to have a library and a laboratory, and research and legal bureaus, so that inventors suffering from intellectual birth-pains could find out what might be the prospects of the child. I had determined to put in a quarter of a million dollars, and many others were equally willing to stand their share. Then we found we were in the hands of a crook. Dr. William M. Grosvenor made the discovery:

“Our president’s real name,” he told me, “is not whatever he called himself. He is a professional rascal. So is his partner. The constitution and agreement he has drawn up would put all control in his hands.”

So we dropped that matter. I do not recall what happened to the president. I have a vague recollection that he hooted and bawled around for a time, in the hope that he might get a little more money out of us, but we were all busy men and we simply forgot him. He got away with the money we had put up, of course, but that did not bother us. No man should have enough leisure time to spend it in crying over spilt milk. But if he had been as honest as he seemed to be competent, a magnificent thing would have been done for American invention. We had planned to raise a fund of \$50,000,000 and I have no doubt that we could have done it. It is not too late to attempt the same thing to-day. Some one should do it.

There were plenty of other things with which to occupy myself. In 1912 I had built a dredge for purposes of recovering gold from river bottoms, and it worked—but I had bad luck with it. I placed it in a North Carolina river-bed in which enough color had been found to promise profitable exploitation if the dredge were as successful as I believed it would be. We just had it in place and had begun work when one of the southern floods roared down the river and carried the dredge away. I was absent at the time, but the man in charge said the flood rose eighteen feet in two hours and swept the dredge over a dam, lodging it in the middle of a swamp. I had no time to fool with it then, for I was busily engaged in building submarines, but I held it in

memory. When I developed a little leisure I began to play again with the thought of dredging for gold. Perhaps, I am not sure, my interest was reawakened by a talk I had with Herbert Hoover. We were lunching at the Engineers' Club and the talk turned to his mining operations.

"I wish I had a good dredging outfit," he said, "for there is a fortune to be made in Russia. I know of sands in the Lena delta which run two hundred and fifty dollars to the yard."

I knew that Hoover knew his Russia, but for all that it seemed to me that two hundred and fifty dollars to the yard is a good many dollars. A little later, though, I had lunch with an associate of John Hays Hammond.

"I have heard of sands that run two hundred and fifty dollars to the yard," I said, "but I hesitate to believe that. One yard might run two hundred and fifty dollars, but a delta full of two hundred and fifty dollar yards is more than I can stomach."

He said I didn't know what I was talking about.

"I know seven hundred dollar sand," he said.

Every one knows how the gold production in Russia has jumped up in the last few years, especially since the United States Government began to buy all the gold available in order to line a hole in Kentucky. It may be that these tales were founded on fact. They steamed me up, in any event, and I built a gold-washing machine that is better by test than any in use to-day. I tried it out with fifty pieces of

gold, ranging in size from a mere flake to a nugget the size of a marble, and ran them through the washed sands time after time. I sometimes failed to recover the fifty on one operation, but I never failed to get the fifty on repeat. When I stopped my experiments I had my original fifty pieces. Armed with this information I adapted the idea to the submarine tube I had used successfully in wreck-salvaging operations.

One of these days, when I am not busy on something else, I'll get it to work on the gold-bearing sands along the Alaskan coast. I know quite well that dredging operations have failed there, and I know why they have failed. The dredgers don't know, but I do. I can put a pump in a submarine, so that I will have both atmospheric and hydrostatic pressures to work with and I'll get the gold out of the sand.

Between times I grew interested in a plan to put up prefabricated houses at a cost that the workman can afford. The idea first came to me during a trip across on the old *Lusitania*. Mr. and Mrs. Joseph Fels were on board and we fell into talk.

He was a philanthropist, the manufacturer of a widely used soap, and was so much interested in the need for decent and permanent housing for the working class that he had financed the building of a model village in England. Fels then used precisely the same arguments that are now accepted for the erection of cheap housing. Later I met some gentlemen at the home of Charles R. Flint, among whom

were Joseph Fels, and William M. Ivens. We talked around and about plans for improving the slum areas, but nothing came of it. However, the thing stuck in my mind. It seemed to me that any plan for cheap housing must possess five qualifications: The house must be cheap, comfortable, convenient in every way, good to look at, and permanent.

I came to the conclusion that the only way in which this important question could be solved was to abandon the old-fashioned way of putting a house together, piece by piece, on the spot, and assemble its parts on the Ford plan. Ultimately I invented a double-insulated wall, which could be cast in a factory, shipped on a truck, and hung in place by an ordinary caterpillar crane. The Patent Office granted me basic patents on features of this invention, and a test running as far back as 1918, when my first experimental house was built in Milford, proves that I was on the right track. Under the New Deal I offered the use of these patents to the Federal authorities through President Roosevelt and Senator Wagner, but nothing came of it.

The obstacle that I met from the outset was the fear on the part of organized labor that the building trade unions would lose work if prefabricated houses were erected on any large scale. I believe that this is a false assumption. That a few men would suffer is true, but the advantage to the labor body as a whole seems to me to be very great. I have convinced a few labor leaders of this, but others have not been

able to recognize that, for every man laid off in one particular trade, many more jobs would be available for other tradesmen, and labor as a whole would benefit because of the cheaper and better housing which would be provided.

CHAPTER XXVII

Freight- and Passenger-Carrying Submarines in the Future

I AM confident that one of these days I will be able to walk along the cargo docks and see freight packages plainly labeled: "Ship by submarine."

For freight- and passenger-carrying submarine routes are certain to be established sometime. That certainty of the future is casting its shadow on us just as the coming of the airplane and the electric light and radio communication and all the other great advances of our age were signaled in advance. The Wright brothers and Thomas Edison and Guglielmo Marconi did not realize, perhaps, how great was the world's need for these commonplaces of to-day. Henry Ford did not think he was making over the United States when he tinkered with a gasoline engine in a rickety shop. But they kept on puttering around and were laughed at and suddenly their nonsensical ideas became a part of modern life.

Freight- and passenger-carrying submarines will come into use because they are a step ahead of the surface ships of to-day, just as the first wheezy, stuttering steam-engines furnished a better source of

power than blindfolded horses walking around a dusty ring.

Trade routes will be established between European and Oriental and Russian ports, and some of our Northern Pacific ports. The distances now covered by some lines using the Suez and Panama canals will be almost cut in two. I have previously shown that a submarine is at an advantage as compared with a surface ship because it is relieved of so much dead-weight. In time of storm it need only submerge to a zone of quiet. In good weather it will ride the waves just as the *Deutschland* did when Captain Koenig brought her over. Even in the midst of war he only found it necessary to do eighty miles submerged.

Not the least of its advantages is that a submarine can enter ice-bound ports. Vladivostok need never again be closed by the Russian winter. Travel under the ice is more comfortable and safer than bucking winter seas. That has been shown. This is not intended as a bit of sensationalism. It is a simple statement of fact. It is probably true that the reader will recoil at the mere thought of a voyage in the depths of the sea, a lid of ice overhead, in a blind boat that cannot see a foot ahead of its nose and must steer by its instruments. The uninformed will think of such a voyage as the ultimate in reckless folly and soggy, chill discomfort. Yet it would be neither dangerous nor uncomfortable. The one very doubtful pleasure the winter voyager would be forced to forego would be his morning constitutional on a

deck heaped with ice and swept by furious waves.

In 1898 I appeared before the faculty of the Johns Hopkins University and advocated the building of a submarine for use under the ice. I was ahead of my time, for the submarine had not then been brought to its present efficiency, but my argument holds good to-day. Nansen had just returned from eighteen months on the arctic ice in an effort to reach the north pole, and reported that he found no ice more than fourteen feet thick. He had averaged only three-quarters of a mile a day, because he constantly met open stretches of water and vast areas of melted slush. Since then I have talked with many other explorers—Sverdrup, Amundsen, Bartlett, Stefánsson, and several Russians—and they agree with Nansen that the ice is not too thick and that it is the difficulties of the surface that make polar travel almost impossible.

Take a submarine built to this order: its top like a toboggan or a ski with a downward inclined bow; the axis inclined a few degrees so that the bottom of the bow is twenty feet or more below the surface; a Sperry Autogyro steering-gear—go ahead on the motors, and you will make progress under the ice. Now and then the boat will bob up gently in an open lead and the batteries can be recharged. If you don't strike open water—what of it? My United States Patent No. 638,342, filed April 4, 1898, shows means for drilling up through the ice and projecting two casings to the open air. Through one fresh air would be taken in, through the other noxious gases

expelled—as simple as that. Tests show that the drilling can be done at the rate of one foot a minute with a three horse-power motor. The recharged batteries would be good for about one hundred miles at a moderate speed.

Irving Bacheller, then editor of the *New York World*, heard of my talk to the Johns Hopkins faculty in 1898, and wrote me that he hoped to interest the elder Pulitzer in building an under-ice boat. But Bacheller's novel *Eben Holden* appeared and made such a sensational success that he abandoned newspaper work, and I grew interested in other things.

In 1904 I made an entirely successful run under the ice of Narragansett Bay, taking with me Major Arthur Murray, later chief of Coast Artillery, and Captains E. J. Bailey and C. E. Parker. In Russia I made some further experiments and was about to arrange for the construction of an under-ice boat for that government. The Russians planned to ship under the ice from the Baltic to their Pacific coast instead of by the Suez Canal, but the war with Japan ended and the project was dropped. I discussed the idea at a dinner given me by the president and directors of the North German Lloyd in Bremerhaven in 1908, but we were all too busy just then to do anything about it. Yet it was out of this talk that the *Deutschland* evolved. Other things engaged my attention until the Lake Company was closed down by Lord Balfour's raid on the United States. One day I read an interview with Sir Hubert Wilkins, who had just made his first flight across the Arctic:



THE NAUTILUS

An air view of Sir Hubert Wilkins' under-ice submarine as it started on its polar expedition.

"There were no suitable landing places," he said. "I think the Pole could most easily be reached by submarine."

I met him along with Captain Sloan Danenhower, who had at one time been in command of submarines in the United States Navy, and later had represented the Navy in charge of our builders' trials at Bridgeport during the testing of new submarines. The Lake-Danenhower Company was formed, the plan being to use the old *Defender*, built in 1907, but later we were able to borrow the *O-12* from the Navy. It was a much larger and more powerful vessel and was one of those scheduled for destruction under the Balfour agreement. We agreed to pay one dollar a year and, when we were through with her, return her to the Navy for destruction.

I designed a new superstructure and put in a diving compartment which later enabled scientists to collect specimens of arctic marine life through an opened door. I understand that the craft itself functioned perfectly, but for various reasons Sir Hubert Wilkins and Captain Danenhower were so anxious to get away on the voyage that they took a chance, and sailed with engines and electric equipment in very bad condition. An engine cylinder was cracked, two of the pumps were not in condition, the ice drill and conning-tower were not functioning properly, and I have been told that one of the large yokes of the generator motor was loose in the rack. In marine engineering, and especially in submarine engineering, there is almost no such thing as a minor

defect. A little trouble is apt to multiply into many big troubles.

Therefore the Wilkins-Danenhower expedition failed of reaching its goal, but it did prove the practicability of traveling through and under heavy ice. It seems that much valuable data was accumulated in determining the contour of the arctic water bed, and I understand that Dr. Sverdrup, one of the scientists on the expedition who spent many hours in the diving compartment, is preparing a book describing this work. One of these days some one, government, transportation company, or well-to-do individual, will build the right kind of a submarine for under-ice and commercial work, and overnight it will be accepted as other mechanical advances of the day have been. Such a submarine should be more rugged than the military type, and the propelling machinery should be designed for giving a powerful thrust at a slow speed rather than for fast going. The expensive installations required for armament and for quick submergence could be dispensed with and the cost reduced to about one-fourth of a military craft.

When one considers that about three-quarters of the earth's surface is covered with water and that there are treasures known to be awaiting us in the depths, it seems certain that eventually commercial-type submarines will be found in every sea. It has recently been reported that the radium content of the red clay found a certain place on the sea bottom is far greater than in the richest ore as yet discovered. Gold can be washed out on the sea bottom,

the cargoes of sunken ships can be recovered, pearls found, sponges taken, and perhaps—who knows?—that old road that leads down into the sea may be traced direct to the Lost Continent.

I'd like to make that trip over the bottom that Dr. Beebe talks about and, perhaps, drift the boat through the streets of Atlantis and peer in through the windows of the drowned palaces. Who knows?

CHAPTER XXVIII

A Confession of Failure

IN all my life I have made only two complete failures. I think that is a record to be proud of.

I do not mean that everything I have attempted has been a success. I have spent time on ideas that were later dropped for other ideas that were more timely or more interesting. But there has always been something at the root of whatever it was I have been working on. I have gotten out patents and forgotten them. I have started many a rabbit down many a track and let it get away. But I have only failed twice—when I undertook to retire.

That cannot be done, not by Simon Lake, at least. I have never had more all-inclusive misery than while I was trying to live up to my fortune and have a good time. I could not form the habit of loafing. I do not like to play. My feet get tired when I tramp through picture galleries although I can stand on a steel deck all day. I am a prey to every form of pest from sand-gnats to black flies. I get sick. I lose interest in things. Until I get back to work I am a total loss. The second time I retired from retiring I told my wife, "I'll never retire again. I'd rather die broke than kill myself trying to have a good time."

The first time I retired from business was in 1915.

The Bridgeport plant was going, it made me a good income, I had a comfortable sum in the bank, and I had worked hard all my life. Most business men reach a point sooner or later when they think that idleness will be pleasant. I am not sure now whether I reached that point under my own steam or was pushed up to it by my womenfolk. At all events I got out of everything I could get out of, cleared decks for action, and, with Mrs. Lake and our youngest daughter, started for the Panama-Pacific Exposition. I had everything that goes into the making of a good time except a willingness to quit work.

Mrs. Lake began operations by coming down with ptomaine poisoning in Salt Lake City. I was pretty badly scared for a few days. Then we went on to San Francisco and all three of us caught colds. Mine almost amounted to pneumonia. As soon as the three determined pleasure-seekers were able to travel we moved on to Asheville, North Carolina, to recuperate. I could hardly walk a block by the time we got there, and spent my time in the lobby of the Grove Park Inn talking to the proprietor. It was a nice hotel and he was an interesting man, having been with Henry Ford on his Peace Expedition of December, 1915, but put together they did not recompense me for the loss of my daily work. There's no doubt of it. I pined for the feel of a drawing-board and a pair of calipers.

We moved on to New Orleans and found it a good town, full of lively people and famous cooks, but it did not compensate me for what I missed.

Cuba was pleasant but presently it ceased to keep me out of the yawns. In Florida the fish was bad and the milk sour, which probably accounts for the fact that I did not get in on the beginning of the Palm Beach boom. Plenty of chances were offered, but none of them looked good. I am not a real-estate speculator by nature. My speculations have boats or diving rigs in them. I brought my family back to Bridgeport and got into my working clothes.

In 1920 I retired again. I am willing to admit that this was my own inspiration. I have always had a liking for a height of land that overlooks the sea. Something ancestral, I suppose, although four or five generations of Lakes have lived in New Jersey's flat lands. I believe that probers into pedigrees once discovered that we have a pirate in our family tree, however, and it may be that I inherited this liking for an overlooking place from him. I had bought a nice farm of 165 acres in the hills back of Bridgeport, from which I could see clear out to sea on a clear day, but Mrs. Lake would not live on it. She likes the town, and, anyhow, I couldn't let the shop alone. I quit this foolishness about retiring, went back to work, lost all my money, and have been quite happy.

If more money is needed I can make it. Only recently I was offered \$50,000 a year by a foreign government to oversee its program of submarine building. But I do not want to go away from home again, and anyhow, there are too many things to do here.

One is the salvaging of the *Lusitania's* cargo. I had a contract for this with the British authorities, but my hands were too full and it expired on December 31, 1935. The treasure of the *Lutine* still attracts me. In 1937 I hunted for the wreck of the British battleship *Hussar*, which sank in the North River, above New York City, during the Revolutionary War and was said to have had some millions in money aboard. There is a tradition that some of this money was salvaged by an old Connecticut Yankee, but I would not vouch for it.

That the *Hussar* did sink in Hell Gate is certain. Her anchor was recovered by an expedition in 1823, and once her stern was lifted to the surface of the water. But in the century that has passed, the shoreline has changed completely. No one now knows precisely where the old hulk rests and my explorations early in 1937 were unsuccessful. I have not given up the idea but other things are more pressing. I know from experience that cargoes can be salvaged at a profit in the comparatively shallow waters of Long Island Sound and along our coast. There is, also, the enticing prospect of voyaging under the ice in a Lake submarine.

Dr. William Beebe wants to take a trip with me in a submarine built for the sole purpose of scientific research. Such a boat would differ widely from a submarine built for military purposes, and I believe that by its use many secrets of the sea could be discovered. For centuries tradition has told of the

lost continents of Atlantis and Mu. If these sunken lands ever existed I believe they can be found by submarine exploration.

I would like to do something for the protection of the interests of inventors. Lately a group of malcontents, theorists, academic players with economic dynamite, have been telling the working man that modern inventions are taking the bread out of his mouth. If the working man can be made to see and understand the facts he will pay no attention to these windy demagogues.

I have been asked to go into politics and may eventually do so, in the hope that I can aid in the enactment of laws to protect the right of the individual to have what he wishes and do as he pleases so long as he does not interfere with the similar rights of another person.

I have a book filled with patents which have been issued to me and which for one reason or another I have neglected. I may take some of them up again. Meanwhile I've gone back to work and I'm happy.

One thing is certain. I will not voluntarily retire again.

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